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BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 6 1945

ARTERIAL ANEURYSM FOLLOWING INJURY TO ILIAC VESSELS

REPORT OF TWO CASES, WITH A COMMENTARY ON LARGE TRANSFUSIONS

BY

H. AGAR, F.R.C.S.
Major, R.A.M.C

JOHN ROWLANDS, M.R.C.S.
Surgeon, E.M.S.

AND

W. H. OGILVIE, F.R.C.S.
Late Surgical Consultant to Eastern Command and E.M.S.

The cases recorded below have several points of interest in common. They are examples of arterial aneurysm following war wounds; they involved in each case ligature of more than one iliac artery; the operations were accompanied by profuse and rapid haemorrhage, to combat which profuse and rapid transfusion was necessary; recovery of life was undoubtedly due to the promptness and completeness with which the blood loss was made good, and recovery of the limb, in the second case at any rate, to the application of the principle of physiological sympathetic release. Both patients were treated in the Eastern Command—one at a military, the other at an E.M.S., hospital.

Case 1: Aneurysm of the Buttock. By H. Agar

During the night of Sept. 3, 1942, Gnr. W. J., aged 29, was wounded in the right buttock by a mortar-bomb splinter. He bled considerably and was unable to walk, and lay in the Desert until found by the Germans next day. Dressings were applied until three weeks later, when he reached hospital in Italy, where the wound was explored superficially without an anaesthetic. The patient was not told of any unusual feature. By December the wound had healed and he could walk with a limp, but a swelling about 2 in. in diameter remained. He was transferred to a prison camp, but soon the leg began to feel heavy and he was admitted to hospital. He reports that a diagnosis of aneurysm was made. In Aug., 1943, the buttock rapidly increased in size and became painful. Thereafter he was bed-ridden and had to lie on his left side with the right thigh flexed. There was further enlargement with increase of the pain in June, 1944, and afterwards he could not extend his right thigh.

He was repatriated and admitted to a military hospital on Oct. 11, 1944. He looked ill and the right buttock was painful. It was enormously enlarged, projecting about 4 in. beyond the left, and the skin over it was tense and buff-coloured. It was impossible for him to lie in any position other than on his left side with the right thigh flexed. Palpation revealed extreme tenderness, and a little pulsation could be detected at the periphery. There was no bruit. The thigh could not be moved more than 5°. The muscles of the thigh and leg were wasted but not paralysed, and sensation in the limb was normal. Blood count: R.B.C., 3,280,000; Hb, 62%; C.I., 0.95; W.B.C., 24,800 (polymorphs 85%, lymphocytes 10%, mononuclears 5%, eosinophils and basophils *nil*). Wassermann reaction negative. Radiography did not show any bone defect and the lung fields were normal. There was evening pyrexia up to 99.6°. Aspiration in two places revealed fresh blood under pressure but no old blood.

During the next week pain and pyrexia increased and the haemoglobin fell to 40%. The foot became anaesthetic, with paralysis of both flexors and extensors of the leg, which showed impaired response to faradism.

The differential diagnosis appeared to lie between sarcoma—that on which he was repatriated—and aneurysm. Points in favour of sarcoma were the late appearance of the swelling after wounding, the huge size and preponderatingly solid consistency of the tumour, the brown discoloration of the skin, and the small amount of pulsation that could be detected. Those supporting aneurysm were that the enlargements had occurred at intervals, that radiography revealed no bone destruction and no metastases in the lungs, and that aspiration had disclosed blood under pressure in two places.

It was decided that operation alone could help the patient. After three pints of packed red cells and two pints of whole blood had been given in three days, the haemoglobin rose to 70%. Although he had a temperature of 103.5° on the day of operation, it was decided to proceed. Anaesthesia was induced by 10 c.cm. of 1/1500 spinal nupercaine, given with the patient on the left side and supplemented by inhalation gas-and-oxygen. The right external and internal iliac arteries were exposed retroperitoneally and tapes passed round each. A long incision was made across the buttock in the direction of the fibres of the gluteus maximus, which were pale in colour and did not bleed. They were separated carefully but there was a sudden gush of both fresh and old blood. The cavity was fully opened and packed. Blood pressure fell immediately to 70 mm. systolic, but three pints of blood, given rapidly, produced considerable improvement. The arteries were controlled, but severe bleeding recurred when the pack was removed. Rapid exploration revealed bare bone near the sacro-iliac notch and that most of the bleeding came from that region. The wound was repacked, the right internal iliac artery was tied, the right external iliac released and the left internal iliac artery exposed retroperitoneally and tied. This greatly reduced the bleeding, but it was not possible to stop it altogether. The wound was finally packed and the patient returned to the ward with a pulse rate of 130 and a systolic blood pressure of 70, 14 pints of blood and 4 of plasma having been given during the operation.

Blood drip was continued, and after two hours the pulse rate was 120 and the blood pressure 130/80. The circulation in the right leg was noticed to be deficient, and in spite of keeping the limb cool there was early necrosis of skin over the tendo Achillis and os calcis as well as of all the toes. A further two pints of blood and two of plasma were given by drip during the 24 hours following operation.

After 36 hours his condition was deteriorating and a foul-smelling discharge from the wound was observed. Under gas-and-oxygen anaesthesia it was reopened and gas gangrene of the remnants of muscle and laminated aneurysmal wall was revealed. A large amount of necrotic muscle and capsule was removed. The deep part of the pack was not disturbed, but the rest of the wound was left open. Penicillin was given by continuous intramuscular drip at the rate of 15,000 units three-hourly for seven days. During the second operation it was noticed that the circulation in the leg improved when the hip was flexed. Thereafter the thigh was gradually extended over several days and the circulation remained adequate. The pack was removed on the seventh day without any recurrence of bleeding. At the same time some slough was removed from the surface of the deep muscles, and secondary suture was successfully performed on Dec. 22, 1944.

By February most of the slough had separated from the heel; some superficial necrosis of the os calcis was revealed by radiography, but the bone was covered with healthy granulations. There was full and controlled movement of the knee and sensation in the leg was returning, but the muscles below the knee reacted only to galvanism. Abduction and hyperextension of the hip were limited. In spite of persistent daily efforts to maintain full movements of the toes and ankle, all joints have gradually stiffened and dorsiflexion of the ankle beyond 90° is not possible. This suggests that fibrosis has occurred in the muscles of the leg, probably as the result of the post-operative ischaemia.

The treatment demonstrated the importance of giving sufficient blood before, during, and after operation. In spite of having 27 pints in four days there was no reaction. It is satisfactorily shown that ligation of both internal iliac arteries can be performed without anxiety for the circulation in the rectum and pelvic organs, and there was no evidence that it was a factor in reducing the circulation in the limb. The efficiency of penicillin together with adequate surgery in the treatment of gas gangrene is well shown, as no serum or other treatment was given. The rapidly increasing anaemia and pyrexia, which were difficult to explain before operation, were probably due to infection in the wall of the aneurysm.

It is intended to apply small Thiersch grafts to the heel and replace them later by a pedicle flap in the hope that it will withstand weight-bearing. Should it fail, a below-the-knee amputation will be considered, although the limited control of the hip-joint will weigh heavily against such a decision.

I wish to express my thanks to Lieut.-Col. T. Scott-Law, R.A.M.C., for permission to publish this case.

Case II: Retroperitoneal Aneurysm. By John Rowlands

This patient, Lieut. U. M., a German prisoner of war, was wounded at 14.00 hours on Feb. 8, 1945. He appeared to have been hit by a bullet which entered on the lateral aspect of the right buttock and emerged from the left flank at a slightly higher level. His condition on arrival at a field surgical unit was poor, but his abdomen was soft and tender. He was given two pints of blood and one of plasma, after which laparotomy was performed (30 hours after wounding). The operation notes state that there was an extensive retroperitoneal haematoma "everywhere," but that no perforation of bowel or mesentery was found, the bullet having apparently passed behind the base of the mesentery. Routine post-operative treatment was given, and the patient was evacuated as a lying case on Feb. 19.

On arrival at a British general hospital two days later he was found to have a distended abdomen and a large mass palpable in the pelvis. His temperature was 99.6°, but his general condition was satisfactory. He had paralysis of the anterior group of thigh muscles on the left and some anaesthesia on the inner side of the thigh.

He was seen by Lieut.-Col. McArdle, Neurological Adviser, who reported complete paralysis of the left quadriceps group, a flicker in the abductors, and good contraction in the hip flexors. The anterior and posterior tibial muscle groups were normal. There was complete sensory loss over the distribution of L 2 and 3 roots, and marked impairment over the sensory area of L 4. The knee-jerk was absent. He bent the hip to 30° with the knee flexed. The recorded diagnosis was a lesion of the upper roots of the lumbar plexus—complete of L 2 and 3 and partial of L 4.

He was evacuated to England, and reached an E.M.S. hospital on March 4. He was in fair general condition, but looked thin and pale and slightly jaundiced. He complained of thirst and of inability to keep down solid food, and said that his bowels, previously regular, had not been opened for five days. The laparotomy wound and the small entry and exit wounds were well healed. On the left side of the abdomen a large mass could be seen, which seemed to be rising from the left side of the pelvis, but no pulsation was visible. On palpation it appeared to be about the size of a foetal head. A thrill was present and a well-marked systolic souffle could be heard. The paralysis recorded in his Army notes was still present, and, in addition to the physical signs there described, there was complete absence of pulsation in any of the great vessels of the left leg: there was no venous congestion of the leg, but a few dilated veins could be seen over the upper part of the thigh and the side of the pelvis.

The patient complained of pain on any attempt at extending the hip, which was held in flexion, but was unaware that he had sustained a severe hot-water burn on the inner thigh. After an enema he passed a good constipated motion with no blood or pus. Examination of the rectum revealed no abnormality. The urine was normal. A blood count showed 3½ million red cells per c.mm., 56% haemoglobin, and 14,350 white cells per c.mm. with 80% polymorphs. A straight radiograph showed no bony injury. An intravenous pyelogram and barium enema were carried out in an attempt to define the tumour; the ureter could not be seen, but the iliac colon was observed to be displaced forwards and medially. A provisional diagnosis of "a leaking perforation in the external iliac artery with a gradually increasing retroperitoneal haematoma" was made.

On March 9 two pints of fresh blood were given, and though the patient's general condition improved after the transfusion it was clear that the abdominal swelling was increasing in size. Major-Gen. Ogilvie saw the patient in consultation on March 13, and performed laparotomy on March 15, six weeks after the injury.

The abdomen was opened through the old paramedian incision, which was considerably lengthened. A large retroperitoneal tumour was seen to occupy the whole left side of the lower half of the abdomen. The colon and small intestine were displaced towards the midline. The abdominal aorta in its lower half and the origin of both iliac vessels were covered by the tumour. The aorta was exposed by dissection at the upper margin of the tumour, on the body of the second lumbar vertebra, and found to be slightly displaced to the right; it was isolated, and a tape was passed behind it to allow digital compression to be applied.

The tumour was then opened by a wide curved incision one inch outside and parallel to the displaced iliac colon, while the aorta was compressed by an assistant. A large quantity of fluid blood escaped, after which several handfuls of clot were scooped out, exposing a large cavity with an endothelial lining. At this point the vertical laparotomy incision was extended by a transverse one running outwards from its mid-point. On dissection in the inner wall of the cavity towards the pelvic brim, a rent was seen on the lateral aspect of the internal iliac artery just below its origin, from which copious haemorrhage took place as soon as digital compression of the aorta was released. This rent was closed above and below by silk ligatures, but so near was it to the origin of the vessel that its upper end could not be properly controlled, even though three successive ligatures were applied. The tear could be excluded by a haemostat placed obliquely without shutting off the passage of blood from the common to the external iliac arteries, but the alternatives that then presented themselves, of attempting arterial suture of a lateral opening in a large vessel already considerably traumatized or of returning the patient to bed with the haemostat in position, seemed to carry greater danger than ligature of the vessels. The common, internal, and external iliac arteries were therefore ligatured, and the haemorrhage satisfactorily controlled. The lumbar plexus was not inspected. The cavity was lightly packed with vaselined gauze and drained with a strip of corrugated rubber—gauze and drain being brought out at the lateral end of the transverse incision. The posterior peritoneum was closed over the operation site, and the abdominal incision was sutured in layers. During and immediately after the operation 5½ pints of stored blood and 1 pint of fresh blood were given.

The condition of the patient on his return to the ward was satisfactory, though the left leg felt very cold. When consciousness was recovered, sensation in the limb was present apart from the previous areas of anaesthesia. There was slight bluish discoloration of the big toe and medial side of the foot for the first 24 hours only. The blood pressure rose steadily, and 24 hours after operation was 178/135, but there were no signs of circulatory overload.

Subsequent progress was satisfactory. The laparotomy incision healed well. The drain was shortened in 48 hours and removed on the fourth day, and the vaselined gauze was taken out in stages during the first week. There was some distension and hiccup during the first 24 hours, but thereafter distension decreased rapidly and the bowels began to move. The leg became warmer, and pulsation was recognizable in the tibial vessels after 10 days. A small collection of pus presented at the drainage opening 18 days after operation; a penicillin-sensitive *Staphylococcus aureus* was grown on culture, and the infection yielded rapidly to a short course of penicillin. There has been no improvement in the power of the paralysed muscles, but sensation has returned over the area supplied by L 4. Exploration of the lumbar plexus in the line of the track may be undertaken at a later date.

I should like to thank Col. W. L. Watson, O.B.E., I.M.S., for permission to publish this case.

Commentary on the Above Cases. By W. H. Ogilvie

In each of these patients the surgeon was faced, during the course of the operation, with haemorrhage at a rate with which transfusion could not possibly keep pace, and the only way to avoid an immediate fatal issue was by applying a temporary packing and interrupting the operation till the circulatory volume had been restored to a reasonable level. In the first case the injured vessel, which lay deep inside the pelvis, was never in view, and during alternate search and resuscitation the patient received an amount of blood that exceeds that in any report of which I have knowledge. In the second case the tear in the artery was soon defined, and, after some tentative ligatures on the origin of the internal branch, finally arrested by ligature of the common, internal, and external iliac arteries.

In each patient the affected limb was left uncovered outside the bedclothes at room temperature, while the body and the other limbs were warmed under an electric cradle. The vasodilatation obtained in this way probably exceeds that following injection or resection of the sympathetic chain.

In the first case, in which both internal iliac arteries were tied, the pelvic organs, which should have suffered maximum deprivation, did not give any evidence of damage. The heel, on the other hand, supplied by the external iliac artery which was not tied, showed arterial gangrene. This mishap was

apparently caused by spasm or actual mechanical obstruction of the external iliac and femoral arteries when the limb was straightened on return to bed. The vessels had probably become shortened by prolonged flexion of the thigh during the period when the patient was bed-ridden, and the events indicate the necessity for gradual change in position after a limb has been held in an unusual attitude for a long time.

In the second case the nutrition of the limb never seemed to be in danger, even though not merely all the iliacs, but the epigastric anastomosis which forms the most obvious collateral channel, had been tied. The compensatory circulation must have been by blood entering the ligatured internal iliac through anastomoses with the lower lumbar arteries, the middle sacral, and the branches of the opposite internal iliac artery, and passing into the external iliac and femoral arteries through anastomoses between the ilio-lumbar and the deep circumflex iliac, the gluteal and the external circumflex, the obturator and internal circumflex, the sciatic and the superior perforating, and the internal pudic and the deep external pudic.

The most striking advance in surgery during the last four years is, without question, the progress that has been made in the use of whole blood. Improvements in operative technique have allowed us to do many things a great deal better than we used to do, sometimes with half the mortality. The sulphonamides and penicillin have increased the cure rate in venereal disease and allowed the early closure of war wounds in a high proportion of cases and with greater certainty than was formerly possible. But blood, used in the quantities and at the speed that we have been taught to use it, has introduced a new therapeutic principle, allowing us to save useful lives that have never been saved before. Without the provision and adequate administration of large quantities of blood a man with an injury to a large artery will certainly die; with it he can recover, and recover with perfect function. Loss of blood is not, like loss of any other tissue of the body, irreplaceable: bone and skin defects can be compensated by borrowing from other parts of the body, but the result is a good repair, not a normal restoration; blood, though it is the fuel of the corporal machine, is not an individual tissue, but one that can be replaced in any quality and quantity from a well-equipped filling station. Injury to an artery is not, like injury to any other structure, irreparable: for whereas muscles and nerves are unique, an artery is one of many alternative channels, the remainder of which will take over and supply the same areas with the same substance when one is gone.

Yet there seems to be a temperance campaign against blood, as if it were a fluid as disreputable and as liable to abuse as beer. We are constantly told that it is used too often and in too great quantities, never that it is used too seldom and too timidly. Articles without number are written about the dangers of blood, about Rh factors and reactions; none about the thousands of men who are alive to-day only because blood was ready for them as they came out of battle and given courageously. Post-traumatic anuria is discussed in every journal, the writers taking the line, "We can't prove that transfusion was responsible, but it looks mighty suspicious": the more rational interpretation—that "the patients who developed an anuria were men who had been in severe shock of sufficient degree to produce a relative renal ischaemia and that this ischaemia was maintained for sufficient time to cause a large amount of kidney damage,"* that is that the men developed anuria not because they were given too much blood but because they were given too little or it was given too late—though one widely held by forward surgeons, is apparently suppressed as running counter to the views of the haemophobes.

It is often said that few patients need more than three pints of blood; it would be truer to say that patients who need only three pints of blood do not need blood at all. A loss of two pints can be made up by fluid administered by mouth. A loss of three pints can be remedied reasonably well by transfusion of plasma. A loss of even four pints need not end fatally if the volume is restored fully and promptly by plasma, though with a haemorrhage of this extent some at any rate of the replacement should be by blood. But when not only is the blood loss considerable but further considerable loss is expected, it is necessary to have large amounts of reliable blood ready for immediate administration. And this means a blood bank. To rely upon a group of donors, however ready they may be, is to court failure in cases where large amounts of blood could really save life. For no haemorrhage, however profuse, need be fatal if the rent from which it is pouring can be stopped. Blood loss, even from a vessel the size of the common iliac, can be stopped by packs and firm pressure; and though transfusion cannot possibly keep pace with the loss while bleeding is going on, the blood can be run in at the rate of a pint in two minutes by using both arms simultaneously, and the circulatory volume can be restored while the surgeon presses the pack in position, ready, at a signal from the transfusion officer, to remove it and make another attempt to control the bleeding hole more permanently.

Blood transfusion has undoubtedly got its dangers, but they are for the most part associated with the giving of blood to those who are gravely ill and who have been repeatedly transfused over a long period. Good blood prepared by a good transfusion service, and given by a good transfusion officer who can detect a doubtful bottle at sight and stop an incompatible transfusion at the first sign of reaction, seems to have no dangers in the type of massive post-traumatic haemorrhage in which it offers the only means of saving life.

*R. A. Phillips, Rockefeller Institute of Medical Research: personal communication.

CUTANEOUS SCHISTOSOMIASIS INVOLVING S. HAEMATOBIUM EGGS

BY

K. O. BLACK, M.D., M.R.C.P.

Major, R.A.M.C.

Although the eggs in human schistosomiasis are deposited chiefly in the bladder and bowel, they are known to occur elsewhere, and may be found in organs drained by the systemic system. Deposits of the eggs of *Schistosoma haematobium* in the lungs, brain, spinal cord, heart, and kidneys are well recognized, and are mentioned in the textbooks. Deposits in the skin have, however, rarely been recorded in the literature, and are not referred to in the standard textbooks. Madden (1919) described deposits of eggs in the subcutaneous tissues, especially in the perineum, but also in the "bathing-drawers area" and rarely elsewhere, giving rise to fibrous nodules. He pointed out a resemblance to tuberculous subcutaneous nodules in the earlier stages, and continued as follows: "These nodules, or chain or irregular collection of nodules, are at first hard, then gradually enlarge and soften, and ultimately burst through the skin and discharge a thick dirty cheesy material and persist as a sinus, or as a fistula in more or less free communication with an adjacent organ or mucous surface." Girges (1934), in an account of the various sites affected in the case of *S. haematobium*, says: "Small, deep-seated, separate, multiple, elevated, dark-coloured deposits occur in the subcutaneous connective tissues in the perineum, penis, and scrotum, over the sacrum and coccyx, and particularly over the pubis, forming hard nodules closely resembling tuberculous glands. They may grow and become adherent to the skin, soften and open to the exterior, forming sinuses," which "are not as a rule connected to the neighbouring viscera." Garcia *et al.* (1940) described the case of a Filipino child with a chronic ulcer of the leg, sections of which showed the presence of *S. japonicum* eggs. The present paper describes two cases of schistosomiasis which developed a distinctive skin lesion, from which eggs of *S. haematobium* were recovered by aspiration, identical with those seen in the stools and urine in the course of investigating 130 European cases of schistosomiasis admitted to a West African general hospital in 1944. Two other cases are included because they had similar lesions, although ova were not recovered from the skin.

Case I

A British N.C.O. aged 21 had bathed in a freshwater lagoon in Southern Nigeria every day for five weeks from Jan. 23, 1944, in the course of training for jungle warfare. He frequently had to leave the water because of skin irritation, and had periods of itching during the nights after bathing. The itching affected his whole body, but was worst on the legs. He remained well until March 12, when he

developed cough, aching in the back of the neck, and nasal discharge which lasted for three days. On the fourth day he had a feeling of extreme weakness with diarrhoea, and his temperature rose to 101.2° F. On the fifth day he developed widespread urticaria and was admitted to hospital. The urticaria faded after three days, but an irregular pyrexia persisted for two weeks, during which the symptoms gradually subsided. The white cell count was 8,400 per c.mm., with an eosinophilia of 12%. Examinations of urine, faeces, and blood films were negative. After this illness he remained well except for the cough, which persisted, and occasional diarrhoea and abdominal discomfort. On May 3 the stool was found to be streaked with blood-stained mucus, in which eggs of *S. haematobium* were found. The white cell count was 9,000 per c.mm., with 19% eosinophils; the urine deposit was normal and contained no ova. The symptoms at this time were diarrhoea, abdominal pain, and cough which invariably troubled him at night.

Fig. 1.—Case I. Cluster of skin deposits.

Treatment with 40 c.cm. of stibophen, given by intramuscular injection over a period of 15 days, was started on May 6. On May 13 the patient drew attention to a skin lesion below the right nipple, which rather resembled and was at first thought to be herpes zoster. He had previously (May 1) noticed some spots on the scrotum, which cleared up within 10 days. The lesion below the right nipple had appeared about May 3 as a small group of pink spots which could be felt with the finger and gave a sensation of slight soreness but not pain. As fresh spots occurred in the same area they were first pink and later violet. When examined on May 13 the lesion (shown in Fig. 1, at a later stage) consisted of a crowded cluster of shotty papules of a violet colour and two outlying pink papules which had been the last to appear. Fresh clusters of papules developed during and after the stibophen course. In the latter part of the course each group contained fewer papules, many of which remained pink and small, and shrank and atrophied although some induration was detectable for several weeks. The lesions were confined to the lower chest and upper abdomen in front, and the lower part of the back and upper part of the buttock behind.

The appearance of unrecognized skin lesions in a proved case of schistosomiasis, at about the time when eggs were first discovered in the faeces, suggested that they might be a manifestation of this disease. Accordingly tissue juice, sucked from the lesions by means of a small needle and syringe, was examined. On May 15 no eggs could be found. On May 21, after several attempts, scanty *S. haematobium* eggs were seen. By June 8 some of the violet indurated nodules on the right flank had developed a whitish apex resembling a small pustule. The contents, removed with a needle, were white and pasty, and contained large numbers of *S. haematobium* eggs, as many as five being seen in some low-power fields. Some were degenerate and opaque, but others seemed healthy and structurally perfect. After the stibophen course the stools remained normal and free of eggs for three weeks, but on June 14 blood and mucus reappeared, eggs were found, and sigmoidoscopy showed active disease in the rectum. Fresh skin lesions began to appear on the scrotum (Fig. 2) as clusters of nodular pink papules which were soon surmounted by a white spot the size of a pinhead. On June 26 the contents of one of these spots were examined and two degenerate eggs of *S. haematobium* were seen, the shell and spine being intact, but the contents granular and structureless. By the middle of July there were numerous papules on the scrotum, perineum, and root of the penis, mostly arranged in groups. Eggs were obtained from these on numerous occasions. The papules were less regular in shape and more variable in size than those on the trunk; they were nodular and took on a distinctly violet colour. On the trunk two groups of lesions which had appeared during treatment and had atrophied without passing through the violet papular stage were still distinguishable as definite elevations at the sites of the original papules. The remainder had become rather softer but were still definitely nodular, with a shiny, pearly top and some wrinkling of the overlying skin. Constipation and abdominal pain became troublesome and pain on micturition developed for the first time. Eggs, with pus and red cells, now appeared in the urine as well as in the faeces. The liver edge was palpable on

Fig. 2.—Case I. Scrotal lesions.

inspiration, smooth, firm, and not tender. There was tenderness on palpation of the right and left iliac fossae. The white cell count was 11,000 per c.mm., with 9% of eosinophils. A second course of 40 c.cm. of stibophen was given, during which no further skin lesions appeared.

Case II

A British N.C.O. aged 28 had bathed almost every day for a month from Jan. 24, 1944, in the same lagoon as Case I. He itched all over the body after leaving the water, and towards the end of the month was troubled with an itchy and prickly rash which he described as like little pinheads, some watery, faint in the morning but red and irritating at night-time. He remained in normal health until March 3, when he was admitted to sick quarters with headache, shivering, and a temperature of 102.6° F. His temperature fell gradually to 100° F. during the first five days, with a daily fluctuation of less than one degree. In the next 10 days his temperature was 99 to 100° F. most evenings, and normal in the mornings. There was no further shivering after the onset, but headache continued, and on the fifth day he developed a dry cough and a rash on the front and back of the chest. He was transferred to hospital, with a tentative diagnosis of dengue, on the eighth day, by which time the rash was fading rapidly. The eosinophils rose in this illness from 1 to 34%, the total leucocyte count remaining between 5,000 and 7,000 per c.mm. Examination of stools, urine, and blood films was negative. After the temperature reached normal he felt quite well and was allowed to return to his unit. Weekly stool examinations were negative and the eosinophil count fell to 15%, but he began to have periodical looseness of the bowels and abdominal discomfort, and was readmitted to hospital on May 4. He now complained of itching of the penile urethra, and the abdominal pain was worse. The stools were formed, with strands of mucus on the surface which were found to contain eggs of *S. haematobium*. The urine deposit remained normal. The eosinophil count had risen to 39%.

On May 8 treatment with stibophen was started. On May 13 a group of pink papules was noticed in the left lumbar region. The

papules were about 3 mm. in diameter, and were palpable as small shotty nodules. On May 15 a second group appeared on the lower left chest in front. A small amount of milky fluid was obtained by aspirating one of the nodules and found to contain one perfect healthy-looking ovum of *S. haematobium*. Four further clusters and some scattered papules subsequently appeared on the left lumbar, sacral, and gluteal regions (Fig. 3). A course of 50 c.cm. of stibophen was given, after which the skin eruptions ceased. The skin lesions in this case were similar to those in Case I. Starting as firm nodules which projected above the surface as pink papules, they developed red areolae which became confluent. By June 6 the clustered papular lesions had taken on a dull-red colour. On June 16 the nodules had become soft and the overlying skin was atrophic, shiny, and somewhat wrinkled, and of a violet or purplish colour. No ova could be found by aspiration at this time. The patient remained well, and repeated stool examinations were negative for five weeks. The

FIG. 3.—Case II. Skin deposits. (The shadows are due to uneven developing of the negative.)

eosinophil count, however, remained high (38–39%), and early in July ova appeared for the first time in the urine, and shortly afterwards again in the stools, and a further course of treatment was started.

Case III

A British N.C.O. aged 27 had bathed in the same lagoon every day for four weeks from Feb. 4, 1944, and had a slight tingling sensation of the skin at the time of bathing. Toxaemic symptoms started on March 12, and nocturnal cough, diarrhoea, and abdominal pain persisted until admission to hospital on May 9. Ova of *S. mansoni* were found in strands of russet-coloured mucus on the surface of the stools. The urine deposit was normal and there was no eosinophilia. A course of 50 c.cm. of stibophen was given, after which the stools were free of ova and the patient was allowed to rejoin his unit, to remain under out-patient surveillance. He still had nocturnal cough, and when seen on June 16 there were two clusters of pink papules in the lumbar region which, he said, had been present for three days. Ova could not be found in the faeces, but there was now an eosinophilia of 11%. When seen again ten days later the spots were still present and *S. haematobium* ova were seen in the faeces. The urine contained pus and red cells, though repeated examinations failed to disclose ova. The patient was readmitted and given a second course of stibophen, after which the spots gradually atrophied. The lesions in this case lasted for over six weeks, and closely resembled those seen in Cases I and II, though ova were not found in them.

Case IV

A British N.C.O. aged 21 had bathed in the same lagoon every day for a month from Feb. 13, 1944. He had a prickling sensation after bathing, and noticed a rash like "prickly heat" on the limbs and trunk. He first felt ill about March 20 with headache and tiredness, followed by irritating cough and abdominal pain. On April 25 blood and slime were noticed in the stools and he was admitted to hospital. *S. haematobium* ova were present in large numbers in the mucus, and there was an eosinophilia of 55%. A course of stibophen was given, the last injection on May 18, after which the stools were macroscopically normal and free of ova. The symptoms were relieved and he was discharged, to be kept under out-patient surveillance. Soon, however, cough, headache, and abdominal pain returned, and two weeks after the end of treatment he developed a group of spots to the right of the umbilicus. On June 21 he was readmitted, and *S. haematobium* ova were found in the stools and later in the urine. An unusual symptom, haemospermia, was reported, and the prostatic fluid was found to contain pus, red cells, and ova. Fresh skin lesions continued to appear on the lower chest up to and during the second course of treatment, after which the symptoms were relieved. Stools, urine, and prostatic smear showed no abnormality, sigmoidoscopy was negative, and no further skin lesions appeared. The lesions in this case persisted for two months, and were similar to those seen in the foregoing cases.

Discussion

The four cases described were heavily infected by repeated bathing over a period of a month or more. Each developed a definite toxaemic stage after an incubation period of several weeks; and local disease, indicated by the passage of eggs, about three months after the first bathe. In each case the eggs appeared first in the faeces, and in three cases later also in the urine. Skin lesions appeared when local disease was established—in Cases I and II at about the time when eggs were first found in the faeces, and in Cases III and IV some two weeks after a course of treatment which was followed by the reappearance of eggs in the excreta.

The characteristics of the lesions, though apparently modified as to the degree of local tissue reaction by antimony treatment, were sufficiently constant and striking to be easily recognizable, and distinct from the more familiar skin complaints. In each case they first appeared as deep, shotty pink papules 3 to 5 mm. in diameter, arranged singly or in clusters which appeared successively. There was sometimes transient local oedema with itching at first, which passed off in a few days, after which there were no symptoms, or merely a slight soreness. An area of erythema developed round each papule, and these areas became confluent within the clusters. The original papules remained distinct, and their nodular character was perceptible for six weeks or more. They changed to a dull red and then to a purplish or violet colour. Some groups and scattered papules which appeared during treatment failed to develop beyond the pink stage and slowly atrophied. The others enlarged somewhat and became softer, with wrinkling of the overlying skin. Finally a white spot appeared at the apex, the contents of which were white and pasty. The resemblance of the lesions at some stages to those seen in the bladder and bowel at endoscopy was striking.

The lesions described here correspond fairly well with the early stages of those described by Madden and by Girges—viz., small subcutaneous nodules, at first hard and later enlarging and becoming softer. Madden refers to the arrangement of the nodules in chains or irregular collections, and Girges mentions that they are elevated and dark in colour, and may discharge a cheesy material. The later stages of ulceration and sinus formation, as described by these authors, were not seen in the cases recorded here, which came under treatment at an early stage.

Madden gives the distribution on the body as: especially in the perineum, but also in the "bathing-drawers area," and rarely elsewhere. Girges includes the perineum, penis, scrotum, over the sacrum and coccyx, and particularly over the pubis. The scrotum, perineum, and root of the penis were heavily involved in one of the cases described above. Posteriorly, the majority of lesions were in the lower part of the back and upper part of the buttocks, though occasional ones were seen as high as the scapular angles. So far the agreement is quite close, but anteriorly the distribution was rather different, the area affected being higher—chiefly between the levels of the nipples and navel.

Paired *S. haematobium* worms may wander from their habitat in the pelvic plexuses of veins into the inferior vena cava, and Fairley (1919) found them in the inferior vena cava in necropsies on infected monkeys. From the iliac veins and vena cava they might ascend the scrotal, gluteal, and lumbar veins by their normal process of travelling against the blood stream. The lesions in the lower part of the chest and upper part of the abdomen are more difficult to account for: possible routes would be via the venous communications between the lumbar and

epigastric veins, or from the external iliacs via the inferior epigastric veins.

The nature of the nodules remained in doubt until eggs were obtained by puncture with a fine needle and withdrawal of a little tissue juice by suction with a syringe. The eggs were identical with those seen in a large number of examinations of stools and urine. Some were structurally perfect, while others, especially after treatment, showed no miracidial structure and had granular contents or were opaque. Tissue was obtained by biopsy from two of these cases, but when examined later the embedded material was found not to include any of the actual tissue from the nodules.

Compared with the skin affections due to cercarial penetration, and the urticaria of the toxaemic stage, cutaneous lesions arising during the stage of established local disease and associated with deposits of eggs have attracted little attention. The lesions described here were practically symptomless, and were noticed only because the white patients, being fastidious about skin complaints in the Tropics, drew attention to them. It seems quite likely, therefore, that this condition might fail to arouse the comment of native patients. Large outbreaks of schistosomiasis among Europeans are unusual, and with an incidence of only about 3% in, for the most part, heavily infected cases under observation in hospital, this complication would no doubt be of rare occurrence in normal practice.

Summary

In a series of 130 cases of schistosomiasis in Europeans, four cases were seen with a distinctive skin lesion. In two of these the lesions appeared at about the time when eggs were first discovered in the faeces. Tissue juice, aspirated from cutaneous nodules, was found to contain eggs of *S. haematobium*, identical with those seen in the urine and faeces. The skin lesions in the other two cases appeared about two weeks after unsuccessful treatment with stibophen, which was followed by the reappearance of eggs in the excreta. The lesions were similar, but eggs were not recovered from them.

The lesions and their distribution are compared with those previously recorded, and the way in which eggs may reach the skin is discussed.

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METHODS FOR DETERMINING PLASMA PROTEINS

VALUE IN A GROUP OF BOYS AGED 14 TO 15

BY

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We have determined the plasma proteins of a group of 45 normal schoolboys aged 14 to 15. Information as to the social condition and diet of the boys is given in a previous publication (Cook, Davidson, Keay, and McIntosh, 1944). As a considerable volume of plasma was obtained there was an opportunity of testing various methods of estimation. The standard method is the gravimetric estimation, in which the total proteins are isolated and weighed. To this method all others should be subservient. It should be stressed, however, that whether plasma "proteins" can be regarded as a distinct chemical species is a moot point. Particularly is this so in the mixed form in which they occur in the blood. In view of the importance of the determination of plasma proteins in clinical medicine and in nutrition surveys we present our results with some practical details in the hope that they will be of value to other workers in this field.

Methods

Collection of Blood and Preparation of Plasma.—Since other blood constituents such as vitamin A and ascorbic acid were to be determined it was necessary to withdraw 40 ml. of blood from each boy. As an anticoagulant potassium oxalate was used. Into a tube prepared to contain 20 ml. of blood 1.5 ml. of 6% (w/v) solution of potassium oxalate was placed. The tubes were put on a metal tray and the solution evaporated to dryness (leaving a deposit of oxalate crystals) by gentle application of heat from a Bunsen burner. Overheating, which converts oxalate into carbonate, must be avoided (Harrison, 1937). The syringe used for withdrawing blood was previously flushed out several times with sterile saline. The small amount of saline left might be regarded as a diluent of the blood, but experiments on haemoglobin determinations using a completely dry and a saline-moistened syringe show that at most a dilution altering the results by 1% is obtained. The boys were seated during the puncture of the vein, a rubber tourniquet being loosely applied round the middle of the upper arm. As soon as the vein was entered the tourniquet was slackened. It was sometimes found necessary to apply slight pressure during the withdrawal of the sample. The oxalated tube was gently rotated during the addition of the blood. In no case was there any coagulation. Haemolysis to a slight degree occurred with three samples. Within three hours the blood was centrifuged for 20 minutes at 2,500 r.p.m. and the plasma pipetted off.

The micro-Kjeldahl determinations and gravimetric estimations were carried out within 24 hours of collection. In the case of the specific gravity method the plasma had been stored for two months at −4°C.

Micro-Kjeldahl Method.—As this method, though often used, is open to a number of fallacies, we propose to describe our procedure in detail.

(i) *Total Nitrogen.*—The method advocated by Peters and van Slyke (1932) is to dilute 1 ml. of the plasma to 10 ml. with 0.9% (w/v) NaCl and then to digest 1 ml. aliquots of the diluted plasma. This procedure, in our opinion, involves unnecessary manipulation and may introduce errors. The procedure adopted was to pipette from a standardized pipette 0.1 ml. of undiluted plasma into the digestion flask and wash it in with 1 ml. of saline. Comparison of this procedure with the dilution method gave substantially the same results. Each sample of plasma was set up in duplicate. To the digestion flask were added 0.5 g. of digestion mixture described by Chibnall, Rees, and Williams (1943) and 2 ml. of conc. A.R. H_2SO_4. In view of the findings of these writers that low N values may be obtained for proteins if the heating is not continued for a number of hours after clearing, as a normal procedure all digestions were carried on four hours after clearing, which normally took place in about half an hour. It may be added that preliminary experiments showed no difference in the results between 2, 4, 8, and 16 hours' heating. "Blank" digestion flasks containing saline, acid, and digestion mixture were set up for each 6 determinations. The liberation of the ammonia was carried out in a Parnas-Wagner type of apparatus. The NH_3 was determined by back-titration of N/100 HCl.

As a check on the apparatus and standard solutions frequent controls, using known amounts of NH_3 as a solution of ammonium sulphate, were carried out. Recoveries of 98 to 102% of theory were always obtained.

The "blank" determinations were approximately 3% of the experimental value. It would appear that this blank is largely due to carriage over of alkali from the distillation flask, as it is little altered if the digestion mixture is omitted from the flask, and becomes negligible if distilled water is substituted for the soda. As a normal procedure a constant measure of 15 ml. of 40% (w/v) NaOH was added to the flask. This stabilized the blank at a maximum value of 0.028 mg. N. All our results are corrected for the blank determination. Any results that did not agree to within 2% were repeated.

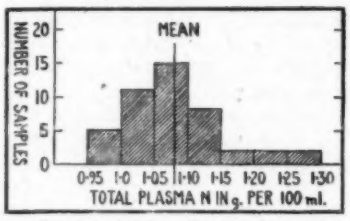
(ii) *Plasma N.P.N.*—This was determined on the Folin-Wu filtrate (see Peters and van Slyke, 1932) in 11 samples of plasma.

Gravimetric Method.—The method used was that of Guillaumin, Wahl, and Laurencin (1929). This procedure involves considerable manipulation and is very laborious. In the series only two of the determinations were carried out in duplicate. Two ml. of plasma was used for each determination. A point that must be strongly emphasized in the gravimetric method is care in drying the coagulated protein to constant weight. This often takes a considerable time.

$CuSO_4$ Method of Phillips et al. (1943).—As an indication of the ease and speed of this method it may be remarked that once the saturated solution of copper sulphate had been prepared the whole procedure of making the separate dilutions and finding the specific gravities of the plasmas took only four hours.

Results

The values for the total plasma nitrogen of the 45 boys are given here in the form of a distribution diagram.



The distribution of total plasma nitrogen in a group of 45 boys.

Taking these figures and multiplying by the factor 6.25 (on the assumption that the protein contained 16% N), the values obtained by the micro-Kjeldahl method are shown in contrast with those obtained by the copper sulphate method (Table I).

TABLE I.—*Total Plasma N, Protein (N×6.25) and Protein as estimated by the $CuSO_4$ Method in the Plasma of 45 Boys aged 14 to 15. N.P.N. in 11 Samples of Plasma is also given: Values as g. per 100 ml.*

	Total Plasma N	Protein (N × 6·25)	Protein by $CuSO_4$ Method
Range ..	0·95–1·26	5·80–7·80	5·50–8·25
Mean ..	1·078 ± 0.14	6·65 ± 0·42	6·97 ± 0·73

N.P.N. (11 samples): Range 0·022–0·033. Mean 0·025 ± 0·0048.

The discrepancy between the values given for N content and those given for protein (i.e., after multiplying N by 6.25) is due to the fact that the latter were obtained from N values taken to one significant place of decimals only. An error of not more than ± 2% may be assumed for the N values. We now regard these values as the more accurate expression of the protein content.

Table II shows a comparison of the results in respect of 12 specimens of plasma in which the proteins were determined

TABLE II.—*Plasma Proteins (g./100 ml.) by Different Methods*

Micro-Kjeldahl (Total N × 5·25)	Gravimetric	$CuSO_4$ Method
7·70	6·30	6·85
7·20	6·23	6·85
6·45	7·05	6·15
6·55	6·84	7·20
6·70	7·46	8·20
6·15	6·19	7·20
6·25	6·13	6·50
6·30	6·56	7·20
6·55	6·00	7·10
7·30	6·75	7·35
7·50	7·39	7·15
7·10	7·24	7·00
Mean 6·81 ± 0·53	6·68 ± 0·48	7·06 ± 0·51

by three different methods. It will be seen that collectively the agreement is fairly good, but individually the agreement is far from perfect.

In the Tables ± is the standard deviation calculated by the method of Bradford Hill (1942).

Discussion

One of us has determined the nitrogen content of the acetone-treated heat-coagulated plasma proteins and finds it to be 15.2%. This value gives a protein factor of approximately 6.6 (Cook, 1945). The nitrogen distribution of plasma is so complex that a conversion of any part of it into protein by multiplying by a simple factor is not justifiable. For example, the view that only proteins are precipitated by acid tungstate can easily be shown to be erroneous, because in this precipitate are brought down the N-containing phosphatides. Another important factor is that the N content of globulin and albumin may well be different. Such a state of affairs may explain the individual differences seen in Table II. The whole subject merits reinvestigation. If methods dependent on N determination are used it would be advisable to express results as g. protein N or as g. N precipitated by some particular precipitant—say acid tungstate or trichloracetic acid. For all practical purposes, however, multiplying total N by 6.25 produces a reasonably accurate result and one that is now generally accepted as giving an exact value, even if of the pseudo variety, to the proteins of plasma. It should be stressed, however, that the final court of appeal ought always to be the gravimetric method. Probably on account of its laborious nature this will never be popular.

These experiments also indicate that, for a quick and reasonably accurate method of analysis, determination of the plasma proteins by the specific gravity method is of great value.

Summary

The plasma proteins of 45 boys aged 14 to 15 have been estimated by (*a*) determination of nitrogen by the micro-Kjeldahl method, and (*b*) the $CuSO_4$ specific gravity method. The values obtained are shown in Table I.

In 12 cases the results from the above two methods were compared with those of the gravimetric method. Collectively, agreement between the three methods is good, but there are considerable individual differences.

The gravimetric method is the most accurate. It is considered that if a method dependent on N determination is used the result should be stated as g. N per 100 ml.

As a rapid approximate determination the $CuSO_4$ method is justified.

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EARLY TREATMENT OF BELL'S PALSY

BY

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It is said that 75% of cases of Bell's palsy recover spontaneously, and therein we think lies the cause of lifelong disfigurement for many people. It seems to be always hoped, sometimes presumed, that the particular case in hand is or will be one of the 75, in spite of the fact that there is often no means of knowing if it will turn out to be so. We should regard Bell's palsy rather from the point of view of those who do not recover spontaneously, and say that in 25% of cases the present usual line of treatment results in complete failure and the patient is permanently disfigured; this is a more arresting point of view, and is likely to result in a considerable diminution of such failures. In every fresh case of Bell's palsy we suggest that it should be assumed not that it will probably get well if little or nothing is done, but that it is possibly one of the 25 which will not recover by itself, and measures should be taken accordingly. That the treatment nowadays of any surgical condition should have so high a failure rate as 25% should of itself call for attention and inquiry. In every case of Bell's palsy the only safe procedure is to presume that it will not recover unless something more than an attitude of masterly expectancy is

adopted. We are concerned primarily with cases due to exposure to cold and not with cases due to disease or trauma of the temporal bone or to central causes, though the treatment to be advocated will be beneficial and helpful in all, even when from the start no recovery can be hoped for in such cases as severe intentional or accidental trauma. This paper is not intended to be a dissertation on "facial paralysis," but simply a contribution to assist the general practitioner, for we are convinced that the possibility of reducing the present 25% failures rests in his hands.

Probably the chief factor in non-recovery of what should be the temporarily paralysed muscles is their immediate and continued overstretching by the non-paralysed muscles of the opposite side of the face. A common method of attempting to overcome this is by the use of a hook in the corner of the mouth attached by a loop to the ear; but, as will be shown, this is often worse than useless. A more simple and effective method of restraining the overaction of the muscles of the sound side is by means of strapping. It is applied thus.

The Strapping Method

The lower half of the paralysed side is first smeared thinly with vaseline or oil. Two strips of half- or three-quarter-inch strapping are then applied to the clean sound side on a level with the upper and lower lips, starting about three-quarters of an inch in front of the ear (Figs. 1 and 2). The sound side is pushed across to the paralysed side, and while in this position the other ends of the strapping are firmly stuck down to the mastoid process on the paralysed side (Fig. 3). Good and very adhesive rigid strapping must be used—not elastoplast. The strapping, once on, must be left indefinitely on the sound side. If it is removed the skin becomes sore and there is difficulty in reapplying it firmly; moreover, the patient is discouraged from persisting with the treatment. When it gets soiled another piece may be placed on top of it, and only in some real necessity should it be removed, gently, by the surgeon or nurse, with the aid of a solvent, and reapplied immediately. Non-adhesion to the paralysed side is necessary in order to avoid the possibility of a pull on the paralysed muscles and so that gentle massage may be given; also so that the patient may endeavour to make voluntary movements of the affected side in front of a mirror at the end of a week or ten days. The latter method is probably the most effective that can be employed to aid recovery, but it must be done while the normal side is out of action. That is to say, conditions must be such that the only thing the paralysed orbicularis oris or zygomatic muscles have to do is to respond, even if ever so feebly, to the will to contract; they must not be concerned also with opposing the pull of the muscles of the opposite side. The probable reason why massage and exercises are so often ineffective is that in the early stage of recovery the muscles are overpowered with work by having two jobs to do at once, and, again becoming overstretched, anything gained is soon lost. The paralysed orbicularis oculi muscle should be supported by a sling composed of two quarter-inch strips of strapping running downwards from each end of the eyebrow and meeting below the centre of the lower lid, as shown in Fig. 1. This serves to keep the lid in apposition to the eye, to prevent epiphora, and to counteract the weight of the paralysed cheek and so prevent the orbicular muscle from losing tone. Fortunately this muscle is not concerned with opposing its fellow on the opposite side, and so this method of strapping is nearly always successful in its object; it may be said that if it is applied early enough, and persisted in, there will certainly be no ectropion to follow in simple Bell's palsy.

Electrical Measures.—During the third week, if recovery is not obvious, the muscles may with advantage be stimulated with weak faradic currents. Minimal doses only should be used—just sufficient to cause visible contractions in the orbicularis and zygomatic muscles. The aim should be just to maintain tone and not to tire the muscle with violent contractions. A current which causes any painful sensation is much too strong, and will do harm. The current should be tried first on the operator himself and then on the sound side of the patient before being applied to the paralysed muscles. If a current which causes contraction on the patient's sound side causes no contraction on the paralysed side, no attempt should be made to produce contraction by using a stronger current. Short daily treatments with very weak current should be ordered. The strapping should be kept on and the above treatment continued indefinitely. It may be for only a week or two, but it may be for two or three months. The patient must be handled very strictly, and be impressed with the serious risk of taking the strapping off even for one occasion, no matter how seem-

Fig. 1.—Showing method of applying strapping. S=strapping stuck to skin on sound side. N.S.=strapping *not* stuck to skin, on paralysed side. Also showing sling for paralysed orbicularis oculi muscle to prevent ectropion.

Fig. 2.—The strapping stuck to the skin on the sound side; it should not be carried back further than shown.

ingly important it may be. One laugh without the strapping may undo weeks of treatment, and to leave it off for several days just when recovery is beginning will almost certainly result in partial failure.

The Mouth Hook.—From what has already been said it will be obvious that if the point of decussation of the orbicularis oris muscle on the paralysed side is made a fixed point, then, when the overacting sound fibres contract, the effect on the paralysed fibres will be to stretch them still more—much more than if there were no hook. If the hook is so adjusted that it actually pulls the angle of the mouth back, not only will the stretching be more severe but the fasciculi radiating from it, the depressor and levator anguli oris muscles will be stretched too. The only muscles which the hook really rests are the zygomatics, and in cases in which the hook has been used we often see that these are the only muscles which have recovered, the orbicularis being particularly flaccid. The rule should be, "Look after the sound side—leave the paralysed side alone; it is the sound side which does the damage."

Other Methods of Treatment

Nerve grafting in traumatic (mastoid) cases is obviously the method of choice and, equally obviously, should be employed early if it is to be successful, as also should decompression of the aquaeductus fallopii if thought necessary; these operations, however, fall within the sphere of otolaryngology and will not be discussed here.

FIG. 3.—Showing method of strapping on the paralysed side. N.S. = Not stuck. S = Stuck very firmly to the mastoid process and a little way beyond the hair line.

Fascia Lata and Muscle Grafts.—These are the plastic surgeon's methods of dealing with facial paralysis in cases usually referred in the later stages, when R.D. is complete. We would, however, like to advance a plea that all traumatic cases (even those few for which nerve grafting is chosen) should be referred to the plastic surgeon as early as possible after the injury. Slings of fascia lata to take the weight of the paralysed cheek, to restrain the overacting muscles of the opposite side, are ideal for the purpose; they are permanent and invisible, and should be used instead of strapping, which can be regarded as only a "tide-over" method in this class of facial paralysis, but which should nevertheless be adopted *immediately after the trauma*, and replaced as soon as possible by fascia lata. For instance, if the facial nerve is implicated in a parotid tumour and the surgeon judges that it is better to sacrifice the facial nerve and save the patient's life, the strapping described above should be applied at the end of the operation, and the case referred to the plastic surgeon in three weeks' time. There is nothing to be gained by waiting, but much to lose. It is surprising how little tone the muscles seem to lose when they receive early and permanent support in this way. Here as elsewhere it is easier, and the result is infinitely better, when deformity is forestalled than when reliance is placed on correcting it after it is well established. The difference between the results of the same operation (fascia lata grafts) done three weeks after total facial paralysis and three years after is almost incredible to those who have not had the opportunity of such comparison. There is some strange persistent urge to "wait and see" if recovery will take place or whether the paralysis will become bad enough to need operation. The answers to this are: (1) recovery will be hastened and not retarded by the fascia lata operation, which may make recovery possible in some cases where it would otherwise be impossible; (2) if nothing is done in the case of total paralysis it is *certain* to become bad enough to require operation, and the golden opportunity of obtaining the best result has been lost.

In well-established long-standing cases (which in future we think should not be permitted to exist) the choice lies between (1) fascia lata slings for the orbicular muscles, and perhaps temporal and masseter muscle slips to give some voluntary movement after re-education, and (2) anastomosis with the hypoglossal nerve. The former methods give balance to the face, with a little muscular movement of the angle of the mouth and full closure of the eye; while the latter method, when successful, provides mass movements only, and facial balance in repose is not often so good as in the sling method.

OSTEOMYELITIS OF THE SKULL DUE TO SALMONELLA TYPHI

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Cases of osteomyelitis due to the typhoid bacillus are uncommon; the following case is also of interest owing to the great length of time that elapsed between the initial infection and the occurrence of osteomyelitis, the site of infection, and mode of onset of the condition.

Case History

A man aged 40, a linesman on the L.P.T.B., was admitted to this hospital with a history of headaches for two years. These had occurred almost daily, and were of a stabbing character lasting varying times from one hour to a whole day. They did not interfere with his work; he had accepted them as part of his life and did not seek medical advice.

For the three months before admission they had been getting steadily worse; he had been losing sleep and was beginning to feel weak and exhausted. On Dec. 24, 1944, he was sitting in his kitchen when he felt a tingling sensation in his right hand. He rose from his chair and found that he had lost control of his right leg, which was useless. This attack lasted one hour and then passed off, leaving him apparently normal in every respect. He consulted his doctor and was admitted to hospital, where he had a similar attack. Investigations proved negative and he was discharged. He still lacked energy, however, and the headaches had increased in severity. Shortly after this he had a severe pain in the back of the head, agonizing in nature; he consulted his doctor, who found a soft fluctuant swelling in the occipital region, and he was again admitted to hospital.

During the next four days the swelling increased steadily in size, but the severe pain passed off, to be replaced by a dull ache. On admission to us, 10 days later, he had a soft, diffuse, smooth, very tender, hot swelling 2½ in. in diameter over his occipital region, mainly on the right side, and considerable oedema of the surround-

ing overlying scalp. This was a typical Pott's puffy tumour, and in addition he showed early papilloedema, a slight facial palsy of upper motor neurone type, and increased reflexes in the right arm and leg.

Radiographs of the skull showed definite osteomyelitis, with a roughly circular defect 1½ cm. in diameter lying over the midline in the occipital region and extending to the left in the post-parietal area. In addition there were a number of other small scattered areas of rarefaction on the right side in the mid-parietal region, and a number of small sequestra could be seen. The pineal lay in the midline and the accessory sinuses and mastoids were clear.

Operation.—On turning back skin flaps over the swelling a large quantity of thin brownish pus escaped. On exposing the bone thick areas of granulation tissue were seen, particularly on the left side, and just to the left of the midline was a small opening in the bone through which pus was pouring. The infected bone was nibbled away, to reveal a large extradural abscess and the dura covered with thick granulation tissue. All infected bone was removed and the granulation tissue scraped off ; the dura was not opened. The wound was filled with hydrogen peroxide, powdered with sulphanilamide, lined with gutta-percha, and packed. The patient's condition deteriorated slightly during operation, but not appreciably.

He was put on a post-operative course of succinyl sulphathiazole 2 g. four-hourly, and blood estimations next day showed a sulphonamide level of total 3.38 and free 2.02 mg. per 100 c.cm. His further course was smooth and uneventful.

The following bacteriological investigations were carried out:

March 21.—Pus aspirated from swelling ; direct smear—no organisms seen ; culture (horse-blood agar) yielded growth of "coliform bacilli" only. Urine: test for Bence-Jones's protein, negative ; no albumin present.

March 26.—Swab (operation) culture (blood agar), pure growth of "coliform bacilli" ; a penicillin-sensitivity test (cylinder-plate method) gave no inhibition of growth. At the request of Mr. McKissock further investigations were carried out to identify the organism, and the usual routine sugar tests gave the following results: Production of acid only with glucose, mannitol, and dulcitol ; no fermentation of lactose or saccharose. The organism was a Gram-negative motile bacillus, did not give a positive indole reaction, and did not liquefy gelatin. This pointed to *B. typhosus*. An agglutination test of the suspension of the organism with standard agglutination sera of *B. typhosus* H and *B. typhosus* O did not give definite agglutination to standard titre. It was therefore decided to send a culture to the Lister Institute at Elstree for confirmation

March 27.—Patient's serum agglutinated with standard suspensions of *B. typhosus* H and O. Agglutination with *B. typhosus* H to titre of 1 in 80. *B. typhosus* O no agglutination. B.S.R.: 1st hour, 65 mm.; 2nd hour, 105 mm. Hb, 54%; R.B.C., 3,400,000; W.B.C., 1,400 (polys 90%, lymphs 8%, monos 2%).

March 31.—Swab taken from wound at the first dressing showed no organisms in direct smear and no growth on culture. The wound was granulating slowly and the condition of the patient was excellent.

April 9.—Wound swab yielded on culture a few colonies which in suspension now gave positive agglutination with standard agglutinating serum ; *B. typhosus* H, *B. typhosus* (Vi). No agglutination with serum *B. typhosus* O.

April 11.—Report from the Curator of the National Collection of Type Cultures, Lister Institute, confirms the biochemical findings, with these additions: "It gives acid but not clot in litmus milk and does not give a positive carbinol reaction ; it also gives a positive O agglutination with typhoid antiserum. Taking these findings as a whole, I think there is little doubt that this Salmonella is indeed *Salmonella typhi.*"

Subsequent investigations on samples of duodenal contents, urine, and faeces failed to isolate *B. typhosus* on three occasions, and cholecystography showed a normal gall-bladder.

Discussion

In view of the very great rarity of osteomyelitis due to *B. typhosus* (Murphy (1916) quotes three instances in 700 cases) the true nature of the "coliform bacilli" isolated from the aspirated pus and from the field of the operation was not suspected. "Coliforms" are a frequent causative organism of osteomyelitis either alone or in conjunction with other organisms, and no significance was at first attached to this. The request for fuller identification with the resultant biochemical reactions opened up further inquiry into the patient's history. He then disclosed an attack of enteric fever at the age of 7—he is now in his 41st year. He had previously not mentioned this illness, nor had it been recorded ; though, even so, after the very long interval of time it most probably would have been considered of no significance. On inquiry at the hospital concerned no documentary corroboration could be obtained—all the papers of so remote a period had been consigned to "war" salvage—but it was stated that at that period routine bacteriological and serological tests would most certainly have been done to confirm the clinical diagnosis.

His subsequent illnesses were malaria in 1927 and a further relapse in 1929 during military service. There is a record in his pay-book of two injections of T.A.B., on Nov. 23 and 30, 1927 : no dosage was mentioned. These do not appear to have succeeded in completely ridding him of his carrier state. He had been entirely free from illness from 1929 until his attacks of headaches two years ago as described above. There can be no doubt that he has harboured *B. typhosus* for 33 years.

Of great significance is the history given by the patient of repeated injuries to his head sustained while working in a low room. He had definite recollection of such injury, over approximately the site of the subsequent abscess, on at least six occasions during the past few years, although on no occasion was the injury severe enough to render him unconscious.

This association of localized injury and subsequent typhoid abscess formation is a very frequent feature in cases in which an acute focus of infection has appeared after a long interval of time in the typhoid carrier. This is borne out by the following cases reported in the literature. Van Dyke (1933) described a case of typhoid osteomyelitis of the femur occurring 24 years after the original attack of typhoid fever—the precipitating cause being a kick on the thigh from a horse. Wardle (1935) describes a case of Brodie's abscess of the tibia occurring 10 years after an attack of typhoid fever. Here again there is a definite history of injury to the shin. There is also quoted from Keen's *Surgical Complications and Sequelae of Typhoid* a case reported by Buschke in which a pure culture of *B. typhosus* was obtained from a tibial abscess 7 years after the fever, the condition having been precipitated by injury. The points of interest in these cases are the length of time elapsing between the attack of typhoid fever and the formation of localized osteomyelitis from which *B. typhosus* was recovered in pure culture—in our case 33 years. It is interesting to speculate as to the precise lair wherein the organisms are lying in wait during these years. A search of the faeces, urine, and duodenal contents failed to isolate them. And what particular part does trauma play in initiating the morbid processes leading to local settlement of *B. typhosus*, resulting in the formation of a localized abscess ? A further point of interest is that we have been unable to find in the literature any previous cases of osteomyelitis of the skull giving pure culture of *B. typhosus*.

Summary

A case of osteomyelitis of the skull is described with full bacteriological investigations, in which the infecting organism was found to be *B. typhosus* occurring 33 years after the original infection.

This case demonstrates the importance of not omitting any illness of childhood from the records of previous illnesses, the very long interval of time after the original fever that can elapse in pyogenic conditions due to *B. typhosus*, and the surprising results which may on occasion arise from more intimate identification of "coliform bacilli" isolated from localized septic conditions.

Our thanks are due to Mr. McKissock for permission to publish this paper and to the Curator of the Lister Institute of Type Cultures, Elstree, for his co-operation. Also to Dr. Lyle for his help in taking the history and clinical examination, and to Mr. Ellis, laboratory technician.

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The Scientific Films Committee of the Association of Scientific Workers has now revised and printed its catalogue of scientific films. A grading system shows the suitability of each film for various types of audience. This catalogue can be bought for 2s. 6d. from the head office of the A.S.W. at Hanover House, 73, High Holborn, London, W.C.1. The Scientific Films Committee was set up in 1938 with the object of furthering the interests of the scientific documentary film, encouraging the making of more such films, and sponsoring the exhibition of scientific films.

Medical Memoranda

Aetiology of Pancreatic Apoplexy

Acute haemorrhagic pancreatitis is usually due to a fulminating infection which either gives rise directly to a haemorrhagic exudate or does so indirectly by the liberation of pancreatic ferments which destroy the walls of the small blood vessels. A few cases, however, of so-called pancreatic apoplexy appear to originate with massive haemorrhage, and the following report throws light on the pathogenesis. The necropsy was one of three similar necropsies seen by me in the last 20 years.

Pathological Report on a Case

A housewife aged 52 (Case No. 179480) was admitted to the City General Hospital, Sheffield, suffering from acute pancreatitis of 10 hours' duration, and she died 26 hours later.

Post-mortem Examination, Feb. 26, 1945 (relevant details only).—The body was that of a very obese female. The peritoneal cavity was full of blood-stained fluid, and the omentum and mesentery were diffusely spotted with fat necrosis. The body and tail of the pancreas were diffusely infiltrated with blood and there was considerable retroperitoneal clot in the left perirenal region. The head and neck of the pancreas were diffusely suffused with blood in their posterior portion, but the anterior parts were only slightly affected, though blood clot surrounded the entire organ. The spleen appeared normal, though surrounded by blood clot, and on dissection it was evident that the haemorrhage had originated in a rupture of the inferior of two large splenic veins before they united to form the main splenic vein about 4 in. from the hilum of the spleen. There was cholesterosis of the gall-bladder, but no calculi or other abnormalities were found in the biliary or pancreatic ducts. No fat necrosis was present in the thorax.

Comment

These three cases all suggest that the primary lesion in the final catastrophe was haemorrhage from rupture of a splenic vein, and that the effused blood injured the pancreas, leading to secondary autolytic digestion, etc., in the region. That the process is not in the reverse direction is suggested from observations on other necropsies of the same condition, which are of primary autolytic or infective origin and which never, so far as I know, lead to the opening of the wall of a large blood vessel. It may be that the initial process is a mild inflammation which produces adhesions between the usually mobile splenic veins and the pancreas, and that some movement may precipitate the final rupture, but I am unable to adduce any proof of this.

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A Case of Achalasia of the Cardia

In a typical case of achalasia of the cardia the symptoms are accompanied by radiological evidence of enlargement of the oesophagus. It is uncertain, however, whether the enlargement follows the onset of symptoms or whether the sequence of events is reversed. The case described below throws light on this point because enlargement of the oesophagus followed the onset of symptoms.

Case History

Mrs. A., aged 59, a housewife, was admitted to hospital on April 5, 1944, with a history of dysphagia and bouts of vomiting since Oct., 1940. She dated the symptoms from the time when her house was bombed. She had lost 34 lb. in weight and her appetite was poor; her diet consisted mainly of soft foods, including milk. There were no abnormal signs on physical examination. The vomitus contained no free hydrochloric acid.

Her oesophagus was *x*-rayed in Oct., 1941, a year after the onset of dysphagia, and was found to be normal. About the same time Mr. F. C. Ormerod examined it endoscopically with the same result. In April, 1942, radiography of the oesophagus showed that no barium passed into the stomach for five minutes and that there was a fusiform dilatation of the oesophagus. These radiological findings were confirmed in April, 1944, the dilatation being somewhat greater than two years previously.

Commentary

The following conclusions can be drawn from this case. (i) Achalasia was probably present for a year before the patient was first investigated in 1941, and yet the oesophagus appeared normal to clinical test. (ii) Definite oesophageal dilatation occurred quite rapidly over a period of six months (Oct., 1941, to April, 1942).

Hurst and Rake (1929–30) have set out in detail their view of the manner in which the oesophageal enlargement comes about. It may be summarized as follows. (*a*) As a result of inflammation of Auerbach's plexus in the region of the cardia, the neuromuscular mechanism is upset and a functional obstruction to the transfer of material from the oesophagus to the stomach is produced. (*b*) The obstruction becomes progressively worse, but for a time hypertrophy of the circular muscle fibres of the oesophagus "compensates" for the obstruction. (*c*) Finally, further compensation can no longer occur and the oesophagus enlarges. In very advanced cases it may also lengthen.

There is a good deal of evidence to support this hypothesis. Many cases with clinical and radiological evidence of achalasia of the cardia show, post mortem, few or no ganglion cells in Auerbach's plexus in the region of the cardia (cf. Rake, 1927). Hurst and Rake (1929–30, p. 499) refer to three cases in which the wall of the oesophagus was found at necropsy to be hypertrophied though the lumen was of normal size, and in which the changes referred to above were present in Auerbach's plexus. This lesion of the oesophagus was symptomless and was thought to represent the stage of "compensation." Hurst (1943) records a case (Case 4, p. 70) in which the dilated oesophagus in the course of a few years became S-shaped, so that the patient could no longer use a mercury bougie.

The missing link in this chain of evidence was the demonstration that an oesophagus with a lumen of normal size could enlarge. Bockus (1943) has described this change, though oesophagitis with ulceration of the mucosa in the region of the cardia complicated his case. The present case shows that the enlargement can occur in an organ which appears normal radiographically and endoscopically.

We wish to thank Dr. C. M. Hinds Howell for permission to publish this case, and Mr. F. C. Ormerod for letting us use his endoscopic observations.

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Neurological Complications in Tropical Macrocytic Anaemia

In view of the statements made by several authorities (Wills, Clutterbuck, and Evans, 1937; Trowell, 1943), that nervous symptoms and subacute combined degeneration have never been found in nutritional macrocytic anaemia, a report of the following case may prove interesting.

Case Record

A coloured woman aged 22 was admitted to the Belize Hospital on Feb. 2, 1943. At the time of admission she was in the seventh month of pregnancy. Her illness had begun three months previously with an attack of fever, which was followed by the onset of numbness in her hands and feet and a sensation of tightness around the waist. Trembling and weakness ensued whenever she tried to stand up, and gradually she lost the ability to walk. Temperature 99° F. on admission. The fundus of the uterus was felt 2 in. above the umbilicus. On examination there was marked loss of power in the upper and lower limbs. Sensation for pain and touch was diminished on the inner aspects of both legs, and there was considerable impairment of the sense of position in the upper limbs and in the left leg. The abdominal reflexes and knee- and ankle-jerks were all absent, and no plantar response could be elicited. Physical examination was otherwise negative. Urine: trace of albumin. Stool: no ova. Blood count: red cells, 2,810,000 per c.mm.; Hb, 68% (Dare), or 11 g. per 100 c.cm.; C.I. (corrected to Haldane), 1.4; M.C.V., 128.5 c.μ; M.C.H.C., 35.5%; white cells, 5,400 (no differential count done); icterus index, 5. Alcohol-histamine test meal: free HCl present. Kahn reaction, negative. Treatment consisted of 6 c.cm. of anahaemin (B.D.H.) during the first week, followed by 18 c.cm. of liver extract (Lilly) during the next three weeks. On March 18 a blood count showed: red cells, 2,730,000 (reticulocytes 3%); Hb, 70% (11.2 g.); C.I., 1.5; M.C.V., 118.5 c.μ; M.C.H.C., 35%; white cells, 7,240. Subsequent treatment consisted of 7 c.cm. of liver extract weekly, acid. hydrochlor. dil. m. 10 t.d.s., and thiamine 9 mg. daily, up to the time of delivery on April 11. The patient's mental attitude during this period became more cheerful, and she said she felt stronger, but no demonstrable improvement in her neurological condition could be detected until she gave birth to a somewhat premature baby weighing 5 lb. After that time her symptoms improved rapidly, and by the end of a month she was able to walk. When last seen, in Nov., 1944, she was in good health, and there had been no recurrence of her nervous symptoms.

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Reviews

PENICILLIN THERAPY

Penicillin Therapy, including Tyrothricin and Other Antibiotic Therapy. By John A. Kolmer, M.S., M.D., F.A.C.P. (Pp. 302. 25s.) London: D. Appleton-Century Company. 1945.

It was to be expected that the now enormous literature on penicillin would soon undergo condensation into book form, and the first product of this process which we have received is *Penicillin Therapy* by John A. Kolmer. This handy volume not only is a trustworthy practical guide to treatment, but deals equally thoroughly with the laboratory and purely theoretical aspects of the subject. There are very full instructions about methods of administration, not omitting the numerous forms of local application and devices by which systemic effect may be prolonged. In the purely clinical section, disease is classified aetiologically—the only rational system in dealing with a chemotherapeutic agent so selective in its action—and the importance of a bacteriological diagnosis and laboratory control generally is emphasized.

Apart from those conditions in which the therapeutic efficacy of penicillin is fully established, there are many references to others in which the indications are not so clear, and very full lists of micro-organisms divided into three categories according to their susceptibility. The author is perhaps a little unduly pessimistic about the treatment of actinomycosis, and *H. pertussis* and the Morax-Axenfeld bacillus deserve promotion from the third to the second category ("moderately susceptible"). There is also a chapter on other chemotherapeutic agents of microbic origin, dealing chiefly with tyrothricin, and one on the use of penicillin and tyrothricin in dentistry and oral surgery. The text is fully documented, with lists of references at the end of each chapter. Although there is an appendix evidently dealing with developments after the main text was written, the whole book is remarkably up to date, and the author is to be congratulated on producing so serviceable an epitome of the whole subject at this stage of its evolution.

UNCOMMON SENSE ABOUT COMMON FOODS

Cooking and Nutritive Value. By A. Barbara Callow, M.A., M.Sc. (Pp. 156. 7s. 6d.) London: Oxford University Press. 1945.

As the family physician comes more and more to be consulted on matters of diet, in health as well as in disease, so he will need increasingly to be able to lay his hand on sources of information that are balanced and up to date. He will wish to avoid those authors that look down their academic noses at every old wives' tale not yet submitted to the searching critique of laboratory test; he will equally desire to shun those purveyors of dogmatism and obscurantism who seem to think that they have supplied the final justification for a food material or a dietary habit if they have called the one living and the other natural. He will know that the practical nutritionist—at any rate, the nutritionist who can help him in his daily task—is one who steers a sane middle course between the Scylla of scepticism and the Charybdis of obfuscation. In Mrs. Callow's book he will find abundant evidence that she is just such a practical nutritionist. She writes with simplicity and clarity, enlivened by occasional touches of humour; her account of modern views about the composition and nutritive value of foods before and after cooking and processing—for that is what her book is about, although the title may suggest a somewhat narrower delimitation of the subject—is as accurate as any one writer can make matters that have been investigated by a large number of specialists. Her book deals, in separate chapters, with meat (including poultry and game); fish; vegetables; fruit and nuts; milk, butter, and cheese; eggs; and cereals, following an introductory chapter on "The Nutritive Value of Food." A short literature list at the end gives some 70 references: it is significant, and not merely an indication of local university patriotism, that McCance and his colleagues are responsible for seven of these—easily the largest single score. Mrs. Callow's other references are of the same order of authority. The back end-paper and the inside back cover give respectively a comparative table of British and decimal weights and measures and a diagram for conversion of degrees centigrade to Fahrenheit.

In a book of this kind there must inevitably be statements to which some reviewer or other will take exception, for the element of personal judgment still enters to no small extent into many of the findings of modern nutritional science. Examples here are the inclusion of cod-liver oil (p. 50) as a rich source of iodine, when many of the very best oils, potent in vitamins A and D, contain none at all, and when none is required by any pharmacopoeial standard; again, the attribution to wheat of any vitamin A activity (p. 132) is not consonant with the findings of Zechmeister and others, who have shown the wheat carotenoids to be biologically inert. A review, however, is no place for the enumeration of critical minutiae, which are better communicated direct to the author. Especially is this so when, as here, the reader often finds his criticism forestalled by the author within a few lines of the passage that gave rise to it.

Although this book is intended primarily for the non-specialist, Mrs. Callow has wisely thought well, right at the beginning, to indicate the shape of modern views about the fluid nature of the body's amino-acid stores; one can also whole-heartedly welcome her insistence that statements about the nutrient contents of a food are of little value without consideration of the quantities of that food likely to be consumed. Valuable also is her objective account of the nutritional differences between flours of different extraction.

When this book goes into the later editions that it deserves and will doubtless get, Mrs. Callow might perhaps consider slightly modifying certain of her presentations. For instance, the low nicotinic acid content of maize can no longer be held solely—or even mainly—responsible for its pellagragenic nature, now that we know milk and whole wheat—recognized anti-pellagric foods—to contain little if any more of the vitamin than maize. Again, various statements about the "gains" in energy value of foods after frying could be clarified by relating these gains with the increases in weight due to the absorption of fat. Further points of comment arise from her reference to the value of wheat offals for ruminants: it might be wise to remember H. D. Kay's remark that the cow "would not care a whisk of her tail" if she never tasted bran again, and to note that it is pigs and poultry, rather than milch cattle, that compete with man for part of the wheat grain. It might also be well to lay rather more stress on the part played by the intestinal flora in supplying essential nutrients to man and other animals, though it is realized that much of the work bearing on this has only been published since the time when Mrs. Callow must have completed her manuscript. The matter may not seem immediately germane to the subject of her book, but it is of importance for two reasons at least: first, as a warning against too glib interpretations of many clinical and laboratory findings; secondly, as offering a possible explanation of certain nutritional deadlocks hitherto unresolved. The maize-pellagra paradox is a case in point.

Mrs. Callow would no doubt be the first to insist that her book makes no new contribution to scientific knowledge, but it does something just as important, and sometimes much more difficult. As a survey in a short space of what is known over a wide and varied field, in which the data are often confused and seldom easy to find, it is perhaps the best book on its subject in the English language, notwithstanding the existence of a number of excellent publications from the U.S.A. which cover similar ground. Furthermore, apart from the information Mrs. Callow has succeeded in presenting on food values, her book contains many useful "tips" on such diverse subjects as the gelling of jams and the splitting of herrings. Its price may at first sight seem a little out of proportion to its size: when one has had an opportunity of studying its contents in detail one realizes that it is a bargain.

PHYSIOTHERAPY

Physical Treatment by Movement, Manipulation and Massage. By James B. Mennell, M.D. Fifth edition. (Pp. 512; illustrated. 30s.) London: J. and A. Churchill. 1945.

The present reviewer, who had the privilege of reviewing the fourth edition of this book in 1940, notices with pleasure that this fifth edition comes out almost in the 20th year since the original production. That it is still produced by the same author after all these years is a remarkable tribute to Dr. Mennell and to the value of the book. It follows very largely the lines of the previous editions, after due allowance has been

made for the change forced upon him by the restrictions of war publishing.

In Dr. Mennell's preface to the present edition he draws attention to his Chapter 39, which he calls his "Postscript," and apologizes for the omission in previous editions of any specific reference to the treatment of "tennis elbow." He has, however, made up for previous omissions by a delightful survey of the variety of conditions that can give rise to the painful joint commonly called "tennis elbow." He has a facility for impressing upon his readers care and detail in any technique, thereby imparting to them a sense of confidence in his powers of differential diagnosis and treatment.

In his discussion of the diseases of the central nervous system, including infantile paralysis, sutured motor nerves, and conditions of peripheral nerves, no reference is made to the now generally accepted work and implications of Guttmann and Gutmann, and of the practical and clinical support given to these findings by Prof. Seddon and Dr. Bowden and their team of co-workers at the Peripheral Nerve Injury Centre at Headington, Oxford. The author's comment on the relative value of Sister Kenny's and Mrs. Guthrie-Smith's contributions in the treatment of paralysis and debilitated muscles is worth quoting in full:

"It yet remains to be proved whether the introduction of Mrs. Guthrie-Smith's sling apparatus will prove to be the really great advance in the treatment of flaccid paralysis as a whole. Personally I have very high hopes, and proof should not be long delayed. For what it is worth, my own opinion is that Mrs. Guthrie-Smith's contribution to the subject far transcends that of Sister Kenny."

This book has so much of genuine value to general practitioner, consultant, and physiotherapist alike that one could wish that Dr. Mennell, with all his years of experience, should now edit a book on physical medicine—using this term in its wider sense.

NEISSER ON SYPHILOLOGY

On Modern Syphilotherapy. With Particular Reference to Salvarsan. By Albert Neisser. Translated by Isabelle von Sazenhofen Wartenberg. Biography and bibliography by F. T. Gardner. (Pp. 42. $1.00.) Baltimore: The Johns Hopkins Press. 1945.

This little volume, besides a translation of a discourse by Neisser on modern syphilotherapy, contains a short biography and an extensive bibliography of this famous syphilologist. The address is well worth study; written in 1911, much of it is as true to-day as it was more than 30 years ago. Neisser must have been one of the first to insist that one injection of salvarsan was not enough, that multiple injections must be given, that mercury should be used concurrently, and that treatment should be continued over long periods; he insisted that Wassermann tests should not be done in small numbers by all and sundry, but must be performed by experienced workers and in large batches if errors were to be avoided. (Would that his teachings were observed more nowadays!) He it was who insisted that the earlier the treatment the greater the chance of cure, that in the early stages the blood reaction could be reversed more easily than in the late, that it is dangerous to rely on a single negative serum reaction, and that spirochaetes may persist in inaccessible situations or assume relatively invulnerable forms.

The modern syphilologist will do well to study this booklet, for not only is it of historic interest but it contains many pearls of wisdom.

The Health Services in Austria: Problems of Medical Reconstruction and Rehabilitation is a group of essays collected by the Committee for Post-War Medical Relief in Austria and the Association of Austrian Doctors in Great Britain. It can be had for 3s. from 14, Craven House, 121, Kingsway, W.C.2. A preface by Prof. F. Silberstein is followed by articles on the past and future of the health services in Austria, on maternity and child welfare, and on dental services, organization of the medical services in liberated Austria, rehabilitation and welfare for the disabled, post-war neurology and psychiatry, and a proposed campaign against venereal diseases in post-war Austria. Opposite the title page is the welcome announcement that the Vienna Allgemeines Krankenhaus had been saved from Nazi destruction by partisan groups consisting of doctors, medical students, and hospital staff.

Preparations and Appliances

A SIMPLIFIED METHOD OF APPLYING THE THOMAS SPLINT

Major Lipmann Kessel, R.A.M.C., writes:

The method of applying a Thomas splint for use as a first-aid measure for an injury of the lower limb is described with the diagrams below. It was developed in a parachute field ambulance and was used by some of the medical orderlies of the field ambulance in Europe. The method would appear to be of some value in first aid under any conditions, and may be considered as an alternative in the teaching of first-aiders to replace the present elaborate method of applying a Thomas splint which is taught in both military and civil spheres.

The method is very simple and I had no difficulty in teaching it to men in a field ambulance in a single class of an hour's duration. It is far more difficult to describe the procedure in a paper than it is to demonstrate it in practice. The essence

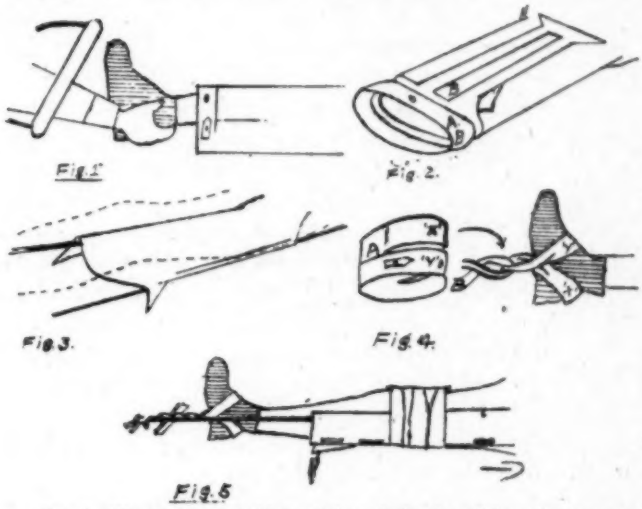

Fig. 1.—The assistant puts his hand through the ring of the splint, grasps the heel of the injured limb, and exerts steady traction throughout, holding the limb about 6 in. off the ground.

Fig. 2.—The splint is run up to the tuber ischii, and the trouser-leg is pulled well down. A 4-in. cuff is cut off the bottom of the trouser (A), and a strip of material 2 in. wide is cut from the midline anteriorly. The proximal end of the cut is extended to each side as shown (B).

Fig. 3.—The two pieces of material A and B (see Fig. 2) are laid aside, and the cut edges of the trouser-leg are swung round the limbs of the Thomas splint, pulled taut, and fixed together by safety pins behind the limb.

Fig. 4.—The cuff (A) is divided through half its length, and the two "lips" so formed are slipped over the boot, one over the heel and the other over the toe, and twisted several times to stop slipping off the boot. It is fixed to the end of the splint by the 2-in. strip (B).

Fig. 5.—Extension is increased by the usual "Spanish windlass," and a circular dressing is applied above the knee to include the splint. The same dressing may often be used to cover any wound in the area.

of the method is to leave the injured limb at rest during most of the manipulation by using the material of the trousers from the injured leg rather than the various triangular cotton and flannel bandages now employed.

The advantages of the procedure are: (1) The injured limb is kept extended and at rest during the procedure, with obvious comfort to the patient and minimized danger from shock and haemorrhage in severe cases. (2) Two men only can easily apply the splint. Only one of these needs to have special knowledge of the method. In the procedure taught at present, three or four trained men are required. (3) The time taken to apply the splint is 3 to 5 minutes. It is doubtful if a splint can be applied in less than ten minutes by the usual method. (4) The materials required, in addition to the Thomas splint and any dressings for an open wound, are a pair of scissors and four safety pins.

The disadvantages of the proposed method are: (1) "Boot-traction" is definitely dangerous, and will cause pressure-sores on the dorsum of the foot if maintained for too long. (2) It is less stable than the usual method, but this can be improved upon by applying the footpiece and further immobilizing bandages at any time after the splint has been applied. (3) The method cannot be considered as anything other than a short-term first-aid measure.

I am greatly indebted to Pte. E. F. Mumford, R.A.M.C., for his illustrative sketches.

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MODE OF ACTION OF PENICILLIN

Penicillin is a remarkable substance with a hold on the popular imagination which even the atomic bomb has failed to loosen. We are, however, very little further towards understanding its mode of action than we were when Fleming published his original discovery 16 years ago. Penicillin has an amazing specificity, being intensely toxic for certain bacterial cells and almost without effect on those of animals. Though its specificity is rather like that of the sulphonamides, its mode of action is different. For example, it is not antagonized by *p*-aminobenzoic acid, peptones, or pus; the sulphonamides are. Further, penicillin can prevent the growth of sulphonamide-resistant organisms, and the sulphonamides can inhibit the growth of penicillin-fast strains; and, whereas the sulphonamides act principally by slowing down the rate of growth, penicillin can cause rapid death and lysis of susceptible micro-organisms. Although Fleming's original observation was that penicillin lysed bacteria, early workers[1] on its mode of action emphasized that it was essentially bacteriostatic. Lately, however, its bactericidal and lytic properties have been widely recognized, and Chain[2] even doubts whether penicillin is ever bacteriostatic. It is generally held that penicillin has three phases to its action. It may be bacteriostatic, bactericidal, or lytic, according to conditions. Very small amounts, down to one-tenth of the bacteriostatic dose, may cause pronounced morphological changes.[3] Cocci swell to a great size, and bacilli elongate to many times their length. Penicillin is here interfering with the power of the bacteria to divide, and its action would appear to be bacteriostatic.

The assay of penicillin is based on its bacteriostatic action—that is, on the amount which prevents the growth of staphylococci. Sulphonamides help this action,[4] and the presence of even two parts in a million of sulphathiazole markedly increases the apparent titre of penicillin.[5] On the other hand, sulphonamides interfere with its killing and lytic actions. Garrod[6] found that sulphathiazole halved the rate of disinfection of staphylococci by penicillin. This may mean that the "static" and "cidal" actions are different, though it seems more logical to assume that they are different degrees of the same action. Bacteriostasis is a loose term, since a stationary population may result from inhibition of growth or from the killing of a fraction of each new generation. The powerful killing and lytic actions are exercised only against dividing bacteria, as Todd,[7] Knox,[8] and Chain and Duthie[2] have demonstrated in investigating the effect of penicillin at different growth phases of the staphylococcus. Chain and Duthie showed that if it is added during the early lag phase the total number of bacteria remains constant for three hours, with a greatly increased turbidity and a decrease in the number of viable organisms. This is due to the production of enlarged forms and to a gradual killing without lysis. If the drug is added at the logarithmic phase of growth when division is rapid it causes a rapid diminution of total and viable bacteria by death and lysis. They found that penicillin becomes effective after a ten-minute lag period, and they assume that this is the time required for one division of the cocci, which having divided are rapidly lysed. When added to an older culture which has reached the stationary phase of growth penicillin does not lyse the culture or affect its respiration. Conditions which increase the rate of division—optimal temperature, use of young cells, or rich medium[7]—all increase the rate of killing and lysis. Conversely, lowering the temperature, dilution of the medium, or presence of growth inhibitors like sulphonamides or boric acid[9] or helvolic acid[2] decrease the killing power.

Penicillin-resistant bacteria are important in considering the mode of action. First, there are the naturally resistant species of bacteria, such as the anaerobic spore bearers, which owe their resistance to their possession of penicillinase, an enzyme which destroys penicillin. A small proportion of the normally sensitive species—for example, staphylococci—are also resistant[10] and also secrete penicillinase. The power of the bacteria to divide is an important factor in resistance, because any strain with an impaired power of division will be classed as penicillin-resistant. Resistant strains may be obtained by subculturing sensitive organisms in broth containing penicillin. The resistant strain so obtained has lost its virulence; it is more easily killed by the body mechanisms[11]; it grows very much more slowly than the parent strain, and it does not secrete penicillinase.[12] It can withstand up to 3,000 times the concentration of drug tolerated by the parent strain.[13] The resistance is only temporary, and after a few cultures in drug-free broth it becomes sensitive and recovers its normal rapidity of growth. This "reverted" form has a slight residual resistance, up to ten times that of the original culture.[13] The ability of these strains to withstand such high concentrations may not be entirely due to a specific penicillin resistance, but to their greatly reduced growth rate. This view gains some support from Demerec's[14] statistical demonstration that such resistance is not brought about by the action of the penicillin, but that the resistant forms arise as a chance mutation and are selected by the drug. Another type of penicillin-resistant staphylococcus is seen in the minute colonies which appear in the otherwise clear zones produced by penicillin in the ring test[15]: these grew slowly, and quickly

1 Chain, E., *et al.*, *Lancet*, 1940, **2**, 226.
2 Ibid., 1945, **1**, 652.
3 Gardner, A. D., *Nature*, 1940, **146**, 837.
4 Bigger, J. W., *Lancet*, 1944, **2**, 142.
5 Taylor, J. Private communication.
6 Garrod, L. P., *Lancet*, 1944, **2**, 673.
7 Todd, E. W., *Lancet*, 1945, **1**, 74.
8 Knox, R., ibid., 1945, **1**, 559.
9 Bigger, J. W., ibid., 1944, **2**, 497.
10 Kirby, W. M. M., *Science*, 1944, **99**, 452.
11 McKee, C. M., and Houck, C. L., *Proc. Soc. exp. Biol.*, N.Y., 1943, **53**, 33.
12 Bondi, A., and Dietz, C. C., ibid., 1944, **56**, 135.
13 Todd, E. W., *et al.*, *British Medical Journal*, 1945, **1**, 111.
14 Demerec, M., *Proc. nat. Acad. Sci.*, 1945, **31**, 16.
15 Schnitzer, R. J., *et al.*, *Proc. Soc. exp. Biol.*, N.Y., 1943, **53**, 75.

reverted to a sensitive form on subculturing in normal broth. Other resistant strains are produced by the action of barium chloride on bacteria.[15] This salt is known to destroy or inhibit enzymes,[16] and the resistance of these variants is due to their lowered metabolic activity and slow growth.

It is stated that, unlike the strains made resistant *in vitro*, those obtained during treatment of animals and patients with penicillin are permanently resistant. This statement needs modification before it can be accepted. Schmidt and Sesler[17] claimed to have made a strain of staphylococcus permanently resistant in animals, but it had only four times the resistance of the original culture. Anderson and others[18] isolated resistant strains of staphylococcus from five patients after one week's treatment with penicillin, having shown that the original strains were sensitive. These resistant strains had sixty times the penicillin tolerance of the original strain, and the authors adduced some evidence that the resistance was permanent. The degree of resistance obtained by treatment in animals and patients is of the same order as the residual resistances of the "reverted" forms from the strains made resistant *in vitro*. It may be that much of the very high resistance obtained *in vitro* is due to non-specific effects on growth, and that the residual resistances obtained after reversion are a true measure of the specific permanent resistance of the strain. Such an effect on growth has been observed,[9] and results in the formation of "persisters," which, having temporarily lost the power to divide, were not killed by penicillin. These, on being placed into fresh broth, grew normally and were easily killed by the drug.

Very little is known of the mode of action of penicillin. It is inactivated by cysteine, but this appears to be by chemical action on the penicillin and not by interference with its mode of action. Nevertheless, it has been suggested that penicillin may act by interfering with the utilization of thiol groups by the growing cell.[19] It may interfere with an essential enzyme system in bacteria. It seems, however, to play a more positive part than a mere interference with growth. It may itself form part of an enzyme system and usurp the functions of the normal bacterial enzyme. The fact that penicillin lyses only dividing cells is an important clue. The cell may become susceptible only at the time of division, or penicillin may become activated by bacterial substances produced at that time, or the cell may kill itself by its own products at the time it divides. It is difficult to absolve the cell from the charge of collaboration in its own death.

SULPHONAMIDE TREATMENT

One of the most useful of the M.R.C. War Memoranda is that entitled "The Medical Use of Sulphonamides": since its first issue in 1943 over 50,000 copies have been sold. A second edition[20] has now appeared, to which considerable additions have been made. These are concerned not only with new sulphonamide compounds and with recent experience in the use of these drugs generally, but with the profound change in the chemotherapeutic situation which has been wrought by penicillin. Although the therapeutic use of penicillin is not within the scope of this monograph it was a subject which clearly could not be ignored, since the sulphonamides and penicillin are alternative treatments for many conditions, and the latter is often much the more effective. On the other hand, in the present state of availability of penicillin dogmatic assertion that it should be used, without mention of any alternative, would unfortunately not always be helpful. These difficulties have been met both by insertions in the text dealing with the individual treatment of many conditions and by a new section on the relation of the main subject to penicillin therapy; in this the spheres of the two forms of treatment are outlined, and in the wide domain where these overlap their respective merits are discussed. The strongest injunctions to use penicillin if possible are naturally given in connexion with severe staphylococcal infections of all kinds, most forms of purulent meningitis, and gas gangrene. Acknowledgment of its superiority to the sulphonamides is made in the treatment of wound infections, diseases and injuries of the eye, anthrax, bacterial endocarditis, gonorrhoea, and Vincent's infection, but instructions for the sulphonamide treatment of most of these conditions are nevertheless given. This is the only possible attitude to take at present, but it will be interesting to see how therapeutic policy will develop when penicillin becomes freely available. That penicillin will entirely supplant all other forms of treatment for gonorrhoea seems certain. Apart from the other conditions named it may well come to be regarded as the ideal treatment for most forms of pneumonia, and, as Helmholz and Sung[21] have pointed out, its concentration in the urine during systemic administration is such that even urinary infections due to some of the more resistant bacteria may be controllable. These and other possible spheres of penicillin treatment remain to be explored further.

The title of this memorandum is too modest: it deals not only with medical conditions in the narrower sense of the word, but also with surgical. The section on wound treatment is particularly thorough, although no attempt is made to pass judgment on the now disputed value of sulphonamide powder treatment as a preventive of wound infection. Several alternatives are offered, including proflavine–sulphathiazole powder—to which might have been added similar preparations of flavazole, a new compound the properties of which have recently been described by McIntosh and others[22]—a microcrystalline suspension of sulphathiazole, and marfanil. This last is one of the three principal new sulphonamides of which mention is made; it is suitable only for local application, peculiarly active against the organisms causing gas gangrene, and not inhibited by *p*-aminobenzoic acid or by pus. A mixture of marfanil (4-aminomethylbenzenesulphonamide) and sulphanilamide was extensively used by the Germans as a wound prophylactic. General instructions, condensed from other publications, including M.R.C. War Memorandum No. 2, are given for the treatment of gas gangrene, and the section on burns follows the lines developed in

[16] Quastel, J. H., and Wooldridge, W. R., *Biochem. J.*, 1927, **21**, 1224.
[17] Schmidt, L. H., and Sesler, C. L., *Proc. Soc. exp. Biol.*, N.Y., 1943, **52**, 353.
[18] Anderson, D. G., *et al.*, *Arch. Surg.*, 1944, **49**, 245.
[19] Cavallito, C. J., and Bailey, J. H., *Science*, 1944, **100**, 390.
[20] M.R.C. War Memorandum No. 10, "The Medical Use of Sulphonamides," 2nd ed., 1945, H.M. Stationery Office, London. 1s. 3d.
[21] *Amer. J. Dis. Child.*, 1944, **68**, 236.
[22] *Lancet*, 1945, **2**, 97.

the Burns Unit, Royal Infirmary, Glasgow, and published in full elsewhere.[23] The two other sulphonamide drugs described for the first time are sulphamerazine and phthalylsulphathiazole, the latter being the latest addition to those drugs which remain largely unabsorbed and exert an action in the lower bowel. Among other additions is an interesting discussion on the value of group prophylaxis—i.e., the large-scale administration of small doses as a purely preventive measure in the presence of an epidemic. This measure has been used effectively against bacillary dysentery and streptococcal infections of the upper air passages; a short course will also eliminate meningococcus carriers, and a very prolonged course has been found to prevent relapses of rheumatic fever. The problem of sensitization to sulphonamides is also discussed, with emphasis on the peculiar liability to this of patients treated by applications to the skin. New proceedings are also described in the section on laboratory methods. A limited number of selected references is given in the text to recent papers or those dealing with matters on which the reader may wish to inform himself more fully. This memorandum remains a model of condensation and judicial appraisal: it contains as much information as the average book of many times its size, and possesses far more authority. It will doubtless remain the standard guide to its subject.

LEPROSY CONTROL IN INDIA

The largest number of leprosy cases in the British Dominions is met with in India on account of the immense population, though the rate per 1,000 is much higher in Africa in such Colonies as Nigeria. In 1941 the Central Advisory Board of Health of the Government of India issued a report on leprosy and its control in India. This dealt with the efforts of the two previous decades to apply recent advances in our knowledge of treatment and of incidence and epidemiology, furnished by the surveys of E. Muir and I. Santra, in controlling the disease by treating early cases on a large scale in numerous leprosy clinics, and in isolating the most infectious cases in leprosaria to keep down the number of new infections arising each year. The committee pointed out that dispensary out-patient treatment alone would not solve the problem and that little progress had recently been made in supplying the more expensive agricultural colonies for infective cases. The total number of leprosy cases in India is now estimated at 1,200,000, but fortunately only about one-tenth of them are highly infectious ones in urgent need of isolation. Only about 14,000 cases, including many uninfective nerve ones, are now isolated in India, but much remains to be done in this connexion before leprosy infections can be controlled and a start made in reducing the incidence of the disease. A paper by R. G. Cochrane[24] on leprosy control, with special reference to the Madras Presidency, is therefore timely. The first essential is the appointment to each Province of an experienced leprologist, with status and emoluments that will attract suitable men. Where this has not already been done surveys are needed to ascertain the usually limited areas in which the high incidence of the disease constitutes it an important problem. In each of these a large agricultural colony should be established for the isolation and efficient treatment of as many as possible of the infective patients, who alone should be admitted to them. Seven such areas have been defined in the Madras Presidency, so the cost will be high, and it is lack of funds that has hitherto prevented this essential step being taken. The Lady Willingdon Leprosy Sanatorium should be developed as a centre for the Madras campaign, with provision for postgraduate teaching and research. In rural areas the isolation of infective cases at night in special houses should be arranged for each infected village, because there are very few Indians who are well enough off to have the necessary accommodation to supply adequate home isolation. The care of uninfective crippled nerve cases, who constitute most of the beggar class, is a philanthropic rather than a public health matter; they should be looked after in separate institutions or in distinct sections of colonies. The Mission to Lepers provides for many of them with the help of Government maintenance grants. In the Madras Presidency orders have been issued to ensure that lepers requiring in-patient or out-patient treatment are to be cared for at all Government hospitals and dispensaries. Children's sanatoria are also required. Wherever well-equipped agricultural colonies are provided there is no difficulty in filling them with suitable voluntary admissions, but instances occur in which highly infectious patients refuse such accommodation. The Madras Government is therefore amending the law to provide for the compulsory isolation of these few refractory patients to prevent the whole scheme of control being stultified by their obduracy. Now that the vast expenditure by Great Britain and the U.S.A. in defending India and recovering Burma has converted India from a debtor to a creditor country, funds should be forthcoming in support of a determined effort to solve the leprosy problem by putting into effect the comprehensive measures above outlined.

BRONCHITIS AND PNEUMONIA IN LONDON INFANTS

The high death rate from bronchitis and pneumonia among infants under 2 years presents a serious problem in public health: in the decade preceding the war one-fifth of the deaths in this age group in London were assigned to these causes. The number and diversity of the micro-organisms responsible for these conditions add to the difficulties of finding a solution and put the problem in a different category from that of diphtheria or measles. G. Payling Wright and Helen Payling Wright[1] found in the London boroughs large correlations between the mortality and three indices of housing—the social class index, incidence below the poverty line, and number of children per family. It is difficult to establish the relative importance of these indices of social, economic, and environmental conditions because of the high correlation between them. Seasonal conditions seem to be the most important predisposing cause of fatality; the weekly death rate in winter is about seven times that of late summer. The correlation is largest between mortality and low temperature of two weeks earlier; the relation is such that mortality rises sharply when the mean temperature of the coldest day of the week falls below 40° F. It is suggested that the chilling of the infant's body, with a consequent lowering of the efficiency of the defence mechanism of the respiratory tract, permits the nasopharyngeal bacteria to extend to the bronchi and bronchioles and there set up foci of bronchopneumonia. The association between temperature and mortality may be the explanation of the less striking relation between mortality and substandard housing found in London and that found in Glasgow. The centre and more densely populated boroughs of

[23] M.R.C. Spec. Rep. Ser. No. 249, 1944, H.M. Stationery Office, London.
[24] *Ind. med. Gaz.*, 1944, **79**, 438.

[1] *J. Hyg.*, Camb., 1945, **44**, 15.

London enjoy a higher minimum temperature than the outer boroughs, and the beneficial effects of a higher temperature may mask to some extent the relation between overcrowding and mortality. In their examination of other hypotheses of the winter rise the authors found that there was little evidence of seasonal variation in the virulence of pneumococci, streptococci, staphylococci, and haemolytic streptococci, and that it was improbable that the winter epidemics of bronchopneumonia could be adequately accounted for by a rise in the carrier rate. There is no support for the idea that susceptibility to the disease increases during the winter in consequence of the progressive depletion of protective nutrient substances in the body, since corresponding low temperatures in spring and autumn are associated with the same order of mortality.

Specific prophylactics can at present do little to prevent the disease; active immunization, even if possible, would not be practicable because the varieties of bacteria responsible are too numerous and too widely distributed in the community. Among the possible ways to reduce mortality from bronchopneumonia the authors suggest that educative measures directed towards the better protection of infants against chilling and exposure would have substantial success. Adequacy of clothing and the physiological reactions underlying the susceptibility of infants to cold are important questions in infant hygiene that require investigation. The chance of surviving an attack of bronchopneumonia largely depends on the promptness and efficacy of the treatment. If full advantage is to be taken of chemotherapy and oxygen therapy institutional treatment is necessary, and it is suggested that if certain hospitals had trained persons specializing in pneumonia, and if practitioners were encouraged to co-operate by sending patients promptly to such experienced medical teams, the mortality might be largely reduced. Of the various non-specific measures it is certain that progressive improvement in social conditions will be accompanied by a fall in the incidence of the disease.

WARTIME WORK OF PSYCHIATRIC CLINICS

The annual report of the Tavistock Clinic for 1943 is one of which those responsible may be justly proud. The admirable work of the clinic has been rewarded by increased support, especially from donations, so that the credit balance is now appreciably greater than it was. Working in their temporary premises at Westfield College in Hampstead the staff have dealt with increased numbers of both adults and children, more of the latter having been sent by local authorities and courts than ever before, showing that the official mind, perhaps rightly slow to adopt new methods and ideas, is beginning to recognize the value of skilled psychological treatment. Depression has been found to be the principal symptom, no doubt owing to the overwork and natural anxieties of wartime. Many people break down because they have been directed to unsuitable work. Again, it has been found that the children referred tend to be either retarded or specially gifted. Many who are sent because they fail at school are found to be of high intelligence, and their failure may well be due to the frequent change of school owing to war conditions. Its present success is undoubted, and with the removal to a permanent home at 2–4, Beaumont Street, London, W.1 (its own premises in Bloomsbury were destroyed by enemy action in 1941), the clinic will, we hope, continue to flourish as it deserves.

The Liverpool Psychiatric Clinic is to be congratulated on its coming of age and especially on the fact that this anniversary is reached with a satisfactory financial position. For all such enterprises, however, the future is uncertain, and continued and increased support is necessary. The report should persuade the public that money given for this cause is an excellent social investment. During the war the nature of the clinical work reflects the experiences of the population. States of anxiety associated with bombing, with casualties or possible casualties among relatives at home and over-seas, and with strange work and conditions of work, including direction away from home, are all reflected in the problems to be dealt with. Among children the "broken home" problem is now more acute than ever, and the increase in delinquency has brought a greater demand from courts and Home Office and educational authorities for the help which such a clinic as this can give. There is no lack of work, but staff is short at present. Financial aid and moral encouragement are the essentials for the continuance of this excellent service.

HEALTH OF THE SUDAN

The state of public health in the Sudan remains satisfactory in spite of the constant threat of the spread of epidemic disease from neighbouring countries. During 1943—the year which saw the end of the North African campaign—according to the report of the Sudan Medical Service, ten separate infections of smallpox were introduced—eight from Egypt and two from Saudi Arabia. The number of cases reported was 182, with 36 deaths. Over 750,000 vaccinations were carried out during the year, bringing up the number of vaccinations during the last seven years to 4,500,000. It appears, on the whole, that the Sudan is well immunized against smallpox and compares favourably with similar African countries in this respect. Four infections of typhus were introduced from Egypt, and the most energetic precautions were at once taken to prevent the disease, which had broken out in a frontier village, from obtaining a hold. The frontier was closed to land traffic except along the river on approved routes, and all persons entering the country by any of these routes were deloused and kept under surveillance. All civil and military passengers travelling third class on the Egyptian railways or on the Sudan Government steamers were deloused on embarkation and kept under surveillance. (Lice, one gathers, are too humble or too shy to travel first class.) Intensive delousing of the whole population—numbering about 35,000—of the Wadi Halfa area, where some cases of typhus had been reported, was carried out at 20-day intervals. In the result only nine cases occurred, with two deaths. Of the other epidemic diseases in the Sudan, cerebrospinal meningitis showed an increased number of cases, though a diminished death rate; diphtheria appears to be more prevalent in the Sudan as contact with the outside world grows, and relapsing fever, with 10,500 cases and 668 deaths, doubled its incidence as compared with 1942, and multiplied its death-roll by six as compared with 1941. The total number of lepers in the Sudan is given as 3,879, of whom 1,598 are under treatment, the remainder only under observation. In Northern Sudan, where the incidence of leprosy is low, lepers are dealt with by a system of home isolation; in Central Sudan small leper colonies have been established near hospitals and are supervised by the hospital staff; and in Southern Sudan, which is the only area where leprosy is of public-health importance, large settlements have proved satisfactory. Malaria, except in the north, is one of the principal scourges in the country. Nearly 15,000 cases were admitted to hospital in 1943. This report of the Sudan Medical Service includes short accounts of the work of the Stack Medical Research Laboratories, the Wellcome Chemical Laboratories, and the Kitchener School of Medicine. The Service, including these bodies, has an establishment of 846, of whom 585 are assigned to hospitals, 135 to the public health department, and 67 to research.

NUTRITIONAL DEFICIENCIES IN HONG KONG BEFORE THE JAPANESE INVASION

BY

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Much has been written about deficiencies in the diet of Chinese; indeed, the deficiencies described seem to be so widespread, severe, and multiple that one might well wonder how the Chinese nation was able to propagate and increase to the extent of 450 millions. However, in an article on the subject of nutritional problems in China (Heng Liu and Chu, 1943) the authors explain that, hitherto, all the research on diets in China has been undertaken in large industrial cities (i.e., Shanghai, Peiping, and Chungking), where the problem of inadequate diets was due to the low purchasing power of the average person. It is not surprising that undernourishment, or even plain starvation, was rampant (and still is rampant) sporadically in parts of China, the main causes being the lack of irrigation with resultant droughts and floods, persistent internal warfare, and, latterly, the Japanese invasion. Thus millions of displaced persons, in search of work or food, converged on large industrial cities, and the resulting saturation and unemployment, coupled with inadequate relief measures, gave rise to conditions of undernourishment or even plain starvation, associated at times with one or more specific deficiencies. Thus in one refugee camp in Shanghai the inmates were given only a bowl of gruel (of imported white rice), with a few vegetable leaves, twice a day. Naturally, severe cases of nutritional oedema and vitamin A, B, and C deficiencies began to appear in due course, but such food cannot be regarded as the customary diet of the Chinese.

High Mortality in Hong Kong

The conditions in Hong Kong were entirely different from those of cities on the Chinese continent. Until 1941 Hong Kong was spared from war and hostilities, its population enjoyed a relative economic prosperity, there were adequate relief measures, and, in addition, the climate did not show extreme variations of heat or cold, there were no droughts or floods, the soil produced three crops a year, while the neighbouring waters were rich in fish. Nevertheless, the total death rate in Hong Kong was higher than that reported in cities in China, and the infantile mortality rate (345 per 1,000 live births in 1939) was one of the highest in the world. Mainly on account of this high infantile mortality, the total death rate in Hong Kong (27.6 in 1939) was surpassing the birth rate (26.7 in 1939); indeed, but for immigration Hong Kong would have faced depopulation.

High Mortality and Immigration

The commonly accepted explanation of the high mortality and morbidity in Hong Kong was that, owing to unrestricted immigration, "the lame, the halt, and the blind" from the whole of South China might congregate there. However, this explanation, as shown below, is not convincing.

Owing to overpopulation in the interior of China, the Chinese, even without *force majeure*, were obliged to emigrate, with preference for over-seas or Shanghai and Hong Kong. When relieving a surgeon on an emigrant ship I was able to observe that, while the exiles returning were human derelicts (mostly victims of beriberi or opium-smoking), the emigrants, on the outgoing voyage, were in good physical health. Therefore I concluded that the fittest and ablest went abroad in order to procure the necessary funds to support their family at home. However, later on (in 1942), while travelling through Kwanchewan and the provinces of Kwangtung, Kwangsi, and Yunnan (all in South China), I noticed that the physical health of the population in general was excellent, and in six weeks' travel through those provinces I was unable to detect any obvious signs of deficiency diseases or gross undernourishment. On the contrary, the stamina of the natives there was astounding and could not easily have been surpassed by any other nation: coolies clad only in cotton singlets and shorts were carrying, on day-long marches in cold November rain, loads up to 200 lb. each, while the greatest part of the population, under similar conditions, were working in paddy fields, knee-deep in water. Obviously such feats could be undertaken only in perfect health and on a well-balanced and adequate diet.

Moreover, Chinese, when sick, do not leave their native land, but, on the contrary, ailing and aged Chinese seek to return to their ancestral homes so that their bones may be laid there and their spirits be gathered unto their forefathers.

To prevent dissemination of infectious diseases, persons arriving in Hong Kong were medically examined and were required to produce valid vaccination and inoculation certificates, unless the ports of origin or of transit were free from quarantinable disease; but in spite of these precautions, cases of infectious disease were imported, especially from neighbouring ports, such as Canton and Macao. However, the infectious disease rate, although some diseases were endemic in Hong Kong, constituted only a minor part of the total death rate.

Admittedly, considerable numbers of destitute and unemployable persons arrived from the hinterland and from the neighbouring ports of Canton, Macao, and Swatow, but they seem to have been easily assimilated, as the number of beggars and destitutes was proportionally much lower in Hong Kong than in Chinese cities. Consequently the unrestricted entry of Chinese into Hong Kong would not seem to be an adequate explanation of the high morbidity and mortality figures there, especially as entry is unrestricted into all Chinese cities, which, moreover, have more primitive sanitation and water supplies, less extensive medical services, etc.; but, in spite of that, as stated above, the recorded death rates in these cities are lower than those in Hong Kong. Thus in Peiping, according to statistics compiled by the Peking Union Medical College (a Rockefeller institution), the death rate is approximately only half of that in Hong Kong.

High Mortality and B_1 Avitaminosis

It may therefore be more justifiable to ascribe the main cause of high morbidity and mortality in Hong Kong to the choice and condition of the staple food. While the rural population in North China consumed such staples as gaolian (brush-wheat), millet, maize (all home-grown, whole-grain cereals), or soya-bean flour or lightly milled wheat flour, and that in South China used as staples home-grown lightly milled (mostly hand-pounded) rice, and urban Chinese were supplied either wholly or partly with the above-mentioned cereals, Chinese in Hong Kong consumed only imported machine-milled rice of low extraction. As a result of such a staple, B_1 avitaminosis was widespread and manifested itself mainly in lack of resistance, especially against respiratory diseases (which topped the list as causes of death), or beriberi (which, since 1940, was second on the list). In lactating women, however, B_1 deficiency (mainly latent) resulted in high infantile mortality (Fehily, 1940, 1944). When the symptoms of beriberi appeared Chinese in Hong Kong frequently attributed this condition to "bad" water (i.e., chlorinated) and, when possible, tried to return to their native villages to be cured, but often only to be buried there. After the occupation of Canton and the Kwangtung coast by the Japanese their return was cut off, and this resulted in a sudden increase in the numbers of cases of and deaths from beriberi. In addition, since 1939, in view of the danger of hostilities in Hong Kong, large stocks of imported and, unfortunately, milled rice were stored in the colony. This milled rice, which had been deprived of most of its vitamins as well as protective husks, was subject to more rapid deterioration, and the remnants of vitamin B complex were the first to disappear. In 1940 this long-stored rice began to be distributed to the population and, as was to be expected, this caused a further increase in B_1 avitaminosis and the appearance of pellagra and ariboflavinosis. Influx of refugees and consequent deterioration of living standards were blamed for this occurrence, and to improve conditions price control was instituted and all those who were destitute or unemployable were segregated, often forcibly, in refugee camps established by Government. However, the incidence of B_1 avitaminosis steadily increased (in direct proportion to the deterioration of rice), and just before the Japanese aggression the hospitals in Hong Kong were unable to cope with all the cases of B avitaminosis (mainly B_1) and its complications.

After the occupation of the colony by Japanese this long-stored rice was supplied to the prisoners of war and civilian internees, and within three months vitamin B deficiency, in the form of beriberi, began to appear among them. Fortunately, the prisoners of war, followed by civilian internees, managed to grow yeast, and thus saved themselves from this disease, to which most of them otherwise would have succumbed in due course.

Vitamin C Deficiency only Secondary

One of the early symptoms of B_1 avitaminosis is gaseous distension of the abdomen. In search of an explanation for this symptom, Chinese came to the erroneous conclusion that fruit and vegetables, being gas-producing, were the cause, and it became customary for them to abstain from fruit and vegetables on the onset of this and other symptoms. Hence one occasionally encountered vitamin C deficiency but, in my experience, it was always secondary to a deficiency of vitamin B, mainly B_1. (Inability to absorb vitamin C, due to gastric disturbances encountered in B avitaminosis, might be an additional factor.)

Occasional Vitamin A Deficiency in Unwanted Female Infants

Vitamin A deficiency was sometimes encountered in infants fed on rice paste or masticated cooked rice, but it also was secondary to the deficiency of vitamin B, and was often associated with infantile scurvy. In all such cases the infants were unwanted baby girls, who had either been "adopted" by unscrupulous women or left in the care of old grandmothers or elder children, who did not consider it worth while to apply for free condensed milk (which, in any case, is preferable to masticated rice). So far as I know, vitamin A deficiency in adults has not been observed, probably owing to the extensive consumption of fish, which often, in the form of sprats, etc., were taken whole.

Absence of Other Deficiency Diseases or Starvation

For the same reason there were no manifest signs of protein deficiency and no clinical or radiological symptoms of rickets, although the absence of the latter might be also attributed to the abundance of ultra-violet rays. (One case of rickets among approximately 5,000 infants and children observed by me might have been due to faulty assimilation.) The requirements of fat were supplied by cooking fat (of vegetable origin) and by fish and meat (mostly pork). It would seem that the fat requirement and tolerance for fat in the case of Chinese in Hong Kong are below those of Europeans. Certainly, full-cream dried milk, reconstituted in accordance with the recognized formulae, is not tolerated by Chinese infants. Although water in Hong Kong was rather poor in calcium, deficiency of this salt was not observed by me, possibly because of its excellent assimilation; dentition in infants was normal, and in general the teeth of Chinese were good.

Although undernourishment was not uncommon, real starvation should not have occurred. Free food kitchens, maintained by missionary and benevolent institutions as well as by Government, were available for the poor, and as a general rule the cost of food was reasonable. There was an abundance of cockles, clams, and mussels on many Hong Kong beaches, and at low tide one saw hundreds of women and children quickly filling up their baskets with them and selling the surplus for almost nothing.

Variety and Wholesomeness of Supplementary Food

In South China, as a matter of choice and not from necessity, 70 to 80% of the diet of Chinese of the lower and lower middle classes consists of rice. They explain that only rice satisfies their hunger, and even well-to-do Westernized Chinese demand a bowl of plain cooked rice at the end of a sumptuous banquet, otherwise "they still feel hungry." A Chinese manual worker can eat up to 2½ lb. of rice a day, and the supplementary foods —"sung"—were taken rather as appetizers. The number of "sung" dishes varies with the occasion and the number of persons partaking of the meal, and they include such nutritious foods as bamboo shoots, sprouting beans, and soya-bean curds. It is usual for a single person to have two "sung" dishes: one of lightly fried vegetables and the other of fish (often sprats) or sometimes meat (mostly pork). The ingenuity displayed by Chinese women in procuring an additional dish of "sung" is remarkable: those living on the hills removed from the sea collect snails, and women of the floating population collect roots of the grass which grows on sandy beaches. In addition they prepare the food (except rice) in the most vitamin- and mineral-saving way: thus green vegetables are only lightly fried with oil, and are eaten while still crisp. Indeed, I do not remember any dish whose cooking water was thrown away (unlike some European methods), and the Chinese, as a rule, are not guilty of overcooking. Unfortunately rice, before cooking, was washed in a few waters and occasionally it was soaked, but Chinese explain that otherwise rice in Hong Kong, being machine-milled and not fresh, tastes of polishing powder and smells of mould. It would seem that the supplementary food was not only well cooked but was varied, tasty, and wholesome, and contained the required amount of all food factors except vitamin B. However, for the complete oxidation of such great quantities of refined carbohydrates (in the form of highly milled rice) assimilation of the amount of vitamin-B_1-containing supplementary food would be beyond the physical capacity of Chinese. If any reduction in the intake of rice was suggested it was not uncommon for Chinese to retort: "But for centuries my ancestors and the people in our village lived mainly on rice, and they were rarely sick, and some lived to be over a hundred years old." This attitude is perfectly comprehensible, taking into consideration the fact that most people in the British Isles still cannot be made to realize the beneficial qualities of the "national loaf."

B Avitaminosis and the Economic Position

It has been stated by Wilkinson (1944) and others that B avitaminosis is associated only with poverty, and consequently one might believe that improved economic conditions would lead to eradication or at least mitigation of this disease. My own observations, however, have led me to believe that this is not the case, as improved economic conditions often resulted in Chinese of the labouring classes consuming larger quantities of the "best" rice—i.e., of the lowest extraction possible. Indeed, the few cases of acute cardiac beriberi seen by me occurred in prosperous people of the lower middle class. Apparently similar results were observed on the island of Nauru (Bray, 1929), in South Africa (Kark, 1943), and the Netherlands East Indies (Wilcocks, 1944). On Nauru the natives, on receiving royalties for their phosphate mines, ceased to work, and replaced their native agricultural produce with imported foodstuffs, such as white flour, refined sugar, and tinned meat. In due course infantile mortality (caused by latent maternal B_1 avitaminosis) rocketed to 40%. In South Africa the natives abandoned agriculture for more profitable work in war industries and changed to a diet consisting mainly of imported white flour and tinned meat, with the result that pellagra has considerably increased. In the Netherlands East Indies, at the time of the rubber boom, beriberi was widespread, but before the present war this disease was encountered only in urban areas among well-to-do classes, who consumed large quantities of refined carbohydrates (mostly imported rice). Indeed, Western civilization would seem to have been of doubtful benefit to Far Eastern peoples, so far as their health was concerned, as the introduction of this civilization was usually marked by the importation of refined carbohydrates—e.g., rice, white flour, sugar, and alcohol—or the machinery for refining their native products.

Prevention of B Avitaminosis. — Although suggested measures for the prevention of B avitaminosis in Hong Kong have been discussed elsewhere (Fehily, 1941), it might not be superfluous to stress once again the need for prohibiting the importation of highly milled rice into the colony. It was suggested that rice which retains approximately 25% of the external layers (i.e., pericarp and aleuron with adhering embryo) would be B-avitaminosis-preventing rice, and at the same time it would be the most suitable rice as regards taste, appearance, and time required for cooking.

Summary

Widespread vitamin B (mainly B_1) deficiencies have been observed in Hong Kong—due to the consumption of imported highly milled and, latterly, long-stored rice.

The vitamin C deficiency occasionally encountered in Hong Kong was commonly associated with primary vitamin B (mainly B_1) deficiencies.

Practically no other deficiency diseases were observed.

It is suggested that the high mortality in Hong Kong (the highest reported on the Chinese continent) may be due to the fact that in Hong Kong, unlike Chinese cities, practically all the rice consumed was imported machine-milled, and of very low extraction.

The effects on the health of Far Eastern peoples of importing refined carbohydrates are pointed out.

The necessity for prohibiting the importation of highly milled rice into Hong Kong is stressed.

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CHRONIC RHEUMATISM IN SCOTLAND

MEDICAL ADVISORY COMMITTEE'S REPORT

The Department of Health for Scotland issued last week a report on chronic rheumatic disease by the Scottish Medical Advisory Committee. The preparation of this document was entrusted to a subcommittee consisting of Sir John Fraser (chairman), Sir Alexander S. M. Macgregor, Prof. Adam Patrick, Dr. D. Dale Logan, and Dr. A. F. Wilkie Millar, with Dr. J. M. Johnston as medical secretary. The report is published at 6d. by H.M. Stationery Office.

In the course of its investigations the subcommittee obtained evidence from representative clinical and technical experts of wide experience in the treatment of chronic rheumatism; its members visited the principal rheumatism clinics in Scotland and had an opportunity to observe the distressing terminal stages of rheumatism as seen in patients within a hospital reserved for the care of the infirm and incurable. In its opinion many of the severe deformities were the result of ineffective treatment or lack of treatment in the early stages of the disease. Its report forecasts a long-term programme of carefully co-ordinated research "from which speedy or spectacular results must not be expected." Its chief recommendation—the setting up of small investigational units at the teaching hospitals, linked with beds at country hospitals for long-term treatment—may be acted upon in the near future, even if on a limited scale. Early in its discussions the subcommittee decided that acute rheumatism, a subject of the first magnitude, lay outside its terms of reference.

In recommending to the Secretary of State that the report should be published, the Medical Advisory Committee stresses its anxiety that publication should not give rise to expectations which cannot quickly be fulfilled. "Any publicity which it may receive should not prejudice the position by raising false hopes in respect of results or in hindering the scientific control of the experiments by inappropriate selection of cases." Summing up present-day knowledge regarding the causation and results of treatment of the chronic rheumatic diseases, it emphasizes that too little is known on the subject. The medical profession is conscious of a serious deficiency in reliable knowledge and a lack of facilities whereby patients can be properly investigated and adequately treated. Substantial contributions to knowledge have been made, however, in the last twenty years, and it is thought opportune to bring the problem of rheumatism into proper focus in relation to imminent developments within the National Health Service.

A Social and Economic Problem

In general, mild attacks of "rheumatism" are so common that many people look upon it as "almost a benign infirmity." Formidable figures are quoted, however, to show the more serious aspects of rheumatism as a social and economic problem. Statistics for the industrially insured population of Scotland show that in the year 1937–8 one in every 37 males was incapacitated by rheumatism, and one in every 50 females. In each year it is estimated that (for men) one in every 21 miners, one in every 29 general labourers, and one in every 37 transport workers have to cease work for some period or other on account of rheumatic affections. For women, corresponding figures show one in every 37 domestic workers (including charwomen) and a similar proportion for agricultural and fishing workers. The committee notes as significant that at one busy rheumatism clinic the number of housewives attending for treatment was fully twice that of men.

A wider and more accurate form of statistical information is needed to survey properly the magnitude of the question. From early adult life onwards, irrespective of age, sex, and occupation, no one can be considered immune. "If to the total invalidism were added the loss in wages, and the expenditure in sickness benefit and treatment, the cost to the nation would in itself prove large enough for rheumatism to rank as a major problem." Referring to earlier investigations into the problem, the report quotes from a 1937 survey of Aberdeenshire, where it was discovered that nearly 10% of all professional work carried out by doctors was concerned with the diagnosis and treatment of rheumatic and allied conditions. Similar figures were forthcoming from the experience of one Army convalescent depot during the war.

There are strong indications, the report states, that the incidence of rheumatism is influenced by occupational environment. Over 80% of the cases are located in the industrial and large burghal areas; the Highlands and Islands show an all-round low average rate, though the period of incapacity is prolonged, due, it has been suggested, to the lack of facilities for adequate modern treatment, and a tendency for many patients to remain at work until severely crippled. Drawing attention to the inadequacy of existing facilities in Scotland for the diagnosis and treatment of rheumatism, the report commends the work of the three orthopaedic and rheumatism clinics at Glasgow, Dundee, and Edinburgh. Problems of accommodation are illustrated by reference to the buildings occupied by these clinics—a terrace house in Edinburgh with every available corner used for some form of therapy; the high standard of work maintained in Glasgow in a church building, where even the organ loft and underground basement are utilized; a factory building in Dundee, converted into a highly efficient clinic, but there are too many stairs for the comfort of patients and staff.

Reference is made to the "large number of remedies and nostrums advertised to the public as specifics for all kinds of rheumatic complaints . . . many of them sold under obscure trade-mark names at a price far above the market value of the ingredients. . . . The anxious or depressed person is especially susceptible to advertisements for antirheumatic remedies." The report also draws attention to the readiness with which the continued use in rheumatism of even such simple drugs as aspirin or phenacetin may lead to a form of addiction to remedies containing them, and reminds medical practitioners to be on their guard against the danger which may follow the continued administration of morphine or related alkaloids for the relief of pain in chronic rheumatic conditions.

Some Recommendations

In addition to the 20–40-bed units recommended to be associated with the four Scottish universities, long-term accommodation on a regional basis should be reserved for rheumatic patients for whom there is a reasonable prospect of alleviation or cure. Medical supervision and research must have continuity. No special building programme is necessary, hutted accommodation of the type employed under the E.M.S. scheme being sufficient for initial needs.

Hospital facilities should be available for the investigation of every case of articular rheumatism to establish the diagnosis and determine the appropriate treatment. There is need for an authoritative review of the whole field of therapy to assess the value of the various methods and to initiate research for new and more effective remedies. These investigations should take into account the question of diet in relation to rheumatism and the therapeutic value of bacteriological and immunological products. Discussing possible improvements in methods of treatment one recommendation is that in the training of physiotherapists more emphasis should be laid upon active exercise and less upon elaborate apparatus. Every medical student as part of his course in therapeutics should be given an outline of the principles of physical therapy supplemented by practical

demonstration within the department of physical medicine. In postgraduate courses for general practitioners more instruction should be given in the methods of physical therapy and the indications for their use in the field of general therapeutics, with due reference to their application in the treatment of rheumatic diseases.

There is a definite place for peripheral clinics, provided that a start is made on modest lines. These clinics should be associated with the orthopaedic service and linked with the hospitals. An essential part of the policy should be the discouragement of haphazard local effort. In accordance with the principle that the subject of rheumatism ought not to be divorced from general medicine by the creation of a narrow specialty the committee is opposed to the establishment of clinics designed solely for the treatment of rheumatism. Recommendations are made on the staffing of peripheral clinics and the follow-up and care of cases after discharge.

The provision of expert information and assistance to medical practitioners will do much to overcome the prevailing feeling of helplessness in regard to the treatment of rheumatism. On the other hand, it is inadvisable to make rheumatism the subject of a propaganda campaign addressed to the general public when so many people suffer from the disease and the existing facilities for treatment are so inadequate. "The best publicity in our view will be a good service with good results."

FACULTY OF OPHTHALMOLOGISTS

The following statement has been received for publication:

Meetings between representatives of the Council of the Faculty, the Council of the Association of British Ophthalmologists, and the Council of the Ophthalmic Group Committee (British Medical Association) have been held. Agreement has been reached regarding the constitution of the Faculty, including new criteria for membership and associateship, and revised arrangements for the election of Council. For the original statement on the formation of the Faculty reference should be made to the *British Journal of Ophthalmology* of February, 1945, to the *British Medical Journal* of Feb. 3, 1945, or to the *Lancet* of Feb. 3, 1945. As a result of this agreement the Council of the Association of British Ophthalmologists were enabled to urge all their members to join the Faculty, and to approve the dissolution of the Association in order that it may be merged into the Faculty. A postal ballot of members of the Association has revealed the necessary majority in favour of dissolution. A new Council of the Faculty is to be elected after due time has been allowed for all, including serving ophthalmologists, to join the Faculty; in the meantime any applications for membership or associateship which present any doubt are to be scrutinized by a joint committee representing the Council of the Association of British Ophthalmologists and the present Council of the Faculty.

The following are the new criteria:

Membership.—(1) Any ophthalmologist of the status of ophthalmic surgeon or assistant ophthalmic surgeon who holds an appointment on the staff of a voluntary or municipal hospital with a recognized eye department. (2) Any ophthalmologist, no longer on the active staff of a hospital, who has held such an appointment. (3) Other ophthalmologists of consultant rank approved by the Council, including those in the Services or holding Government appointments, and those of the British Commonwealth and Empire over-seas.

Associateship.—(1) Full-time ophthalmologists of two years' standing. (2) Part-time ophthalmologists of two years' standing, holding a hospital appointment or possessing a special diploma. (3) Practitioners who on June 1, 1945, were on the N.O.T.B. list.

Council.—The Council shall be increased in number to 25; the number of regions to be increased to 6, to correspond with the regions defined by the British Medical Association. The Council shall be constituted as follows: (1) One member elected from each region by a local regional vote of members. (2) Twelve members elected by a national vote of members. (3) One associate elected from each region by a local regional vote of full-time associates, representing the full-time associates. (4) One part-time associate elected by a national vote of part-time associates, representing part-time associates. (5) Any member of Council shall be free to stand for election indefinitely, if properly proposed and seconded.

The outline of the constitution, functions, and management of the Faculty included in the statement published in the medical press and as amended above will in general terms remain valid. As soon as the new Council is elected, the constitution and by-laws will be legally drawn up.

Forms of application for membership or associateship of the Faculty may be obtained from the honorary secretary, 45, Lincoln's Inn Fields, London, W.C.2.

STEWART DUKE-ELDER, *President*,
FRANK W. LAW, *Secretary*,
Faculty of Ophthalmologists.
J. N. TENNANT, *President*,
H. R. BICKERTON, *Secretary*,
Association of British Ophthalmologists.

BRISTOL AND DISTRICT HOSPITALS

The Bristol and District Divisional Hospitals Council has published its fourth annual report. The Council consists of representatives of the voluntary, municipal, and county hospital authorities and medical organizations in the city of Bristol and the counties of Gloucester and Somerset. It includes a representative (Dr. H. M. Golding) of the Bristol Division of the B.M.A., and a representative (Dr. C. Dix) of the Bristol Panel and Local Medical Committee. Recently the Council has decided to grant a representation of eight members to the three public contributory schemes operating in Bristol and Kingswood and to two private works' hospital funds. It is stated in the report that the area covered by the Council, expanded to include Wiltshire and the cities of Bath and Gloucester, has been largely accepted as the suitable one for the planning of the West of England Hospital Services. It is proposed to cover this three-counties area with four local joint consultative committees, and then to set up a co-ordinating committee for the area of which Bristol is the natural medical teaching centre.

The standing committee of the Council has devoted much time to the important subject of rehabilitation, and convened a meeting of directors of leading Bristol industries to whom it suggested that something more must be attempted forthwith to facilitate the recommendations of the Tomlinson report than so far it has been possible to achieve. The Bristol Council for the Disabled has already laid down a basis for a service, and the meeting of manufacturers decided to call together a committee formed on the initiative of the Bristol Chamber of Commerce and Shipping to examine the financial questions involved in carrying out the plans which the Bristol Council for the Disabled has suggested.

The Council, besides a grant for its administrative expenses, received a fourth grant, amounting to £1,000, from the Nuffield Provincial Hospitals Trust. Both the Council and the Trust doubted, however, if the distribution of the grants in small sums to constituents was a desirable policy to be continued, and accordingly it was recommended to the Trust, and agreed, that the grant be made to the University of Bristol—half for research into the treatment and prophylaxis of acute rheumatism in childhood, and half for research on Ménière's disease.

Many other matters of interest are referred to in the report, including a meeting with the city engineer concerning the proposed new lay-out of roads in the replanning of Bristol, in so far as these might affect hospitals in the central area.

THE WELLCOME MEDICAL MUSEUMS

The Wellcome Foundation has appointed Dr. E. Ashworth Underwood as Director of the Wellcome Historical Medical Museum and the Wellcome Historical Medical Library; he will take up his new duties as soon as he can be released from his present post of medical officer of health and chief school medical officer of the County Borough of West Ham. During the past five years Dr. Underwood has been honorary secretary of the History of Medicine Section of the Royal Society of Medicine. He has contributed to the *Proceedings* of that Society, and to other journals, studies on the history of certain infectious diseases, on the medical importance of Lavoisier and the French chemists, on the earlier anatomists, and on other subjects. He has for some time been collaborating with Prof. Charles Singer in work on Vesalius. Wing Commander C. J. Hackett has been appointed Director of the Wellcome Museum of Medical Science in succession to Dr. S. H. Daukes, who has been responsible for the development of this museum during the last 26 years. Dr. Hackett, who was a Research Fellow in Tropical Medicine of the Medical Research Council and has done work on yaws and other tropical diseases, will take up his new post as soon as he has been released from the Royal Air Force.

OPENING OF MEDICAL SCHOOLS

LONDON SCHOOL OF MEDICINE FOR WOMEN

Lord Moran's Philosophy

The inaugural address at the London (Royal Free Hospital) School of Medicine for Women was delivered on Sept. 28 by Lord Moran, P.R.C.P. The Dean, Dr. Elizabeth Bolton, who presided, paid a tribute to Lady Barrett, who was president of the School at the time of her recent death. She also mentioned that the students this session in the first medical course numbered 70, and in the second 30.

Lord Moran began by asking why it was that so few old students remembered anything that was said in inaugural addresses by distinguished persons. Partly it was because the student had not much use for improving discourses, and partly because the student soon perceived that the orator was not saying what he thought, but what he was supposed to say on an occasion. Lord Moran himself, therefore, adopted an unconventional line, forsaking the usual reference to Florence Nightingale and the emancipation of women, of which that School had heard much, and confined himself to some practical "Don'ts." He advised the students, in the first place, not to be too gregarious. In this thickly populated land we lived too much on the top of one another. Our very thoughts were borrowed thoughts, and even teachers did not always encourage their students to think for themselves. Much was heard of the shortcomings of examinees, and little about the frailty of the examiner. So often examiners tried to find out what a student did not know, so that the student tried to acquire a smattering of everything, whereas if the examiner tried to find out what he did know the student would be content to miss some things in order to know others really well. Examination was a form of criticism, and as in the criticism of a book or play the examiner or critic should not try to be clever in an obstructive way but rather to put his finger on what was best.

In spite of all discouragement, however, the student, when qualified, would have to think for himself, the more so because at the present time the Government was putting a fundamental question to the nation: Was the stimulus of competitive life, with its prizes for the successful, the right or only spur to bring out the best in men and women, or would they do equally well in a national service? "If you have been taught to think for yourself, then worry out the answer impartially and let us have it." What were the spurs to endeavour? It was foolish to underrate the money motive, but it was easy to exaggerate it. In science some of the most critical minds were eager to work in a service, often poorly paid but rich in happiness, because it enabled them to do the work they wanted to do and under the best possible conditions.

Another of Lord Moran's "Don'ts" was "Don't become a drudge. Don't dull your wits by too much work." After all, they had only one life to live, and might as well be happy in it. What was it that made a man happy? First and last and all the time, it was temperament. A cowman whom he knew worked early and late, but was always singing snatches of song, and although he was always in the same little spot he "seemed to get more kick out of life than I who have wandered over half the Western world these last five years." Another piece of advice was not to make a god of security. "Don't think always of safety first. I do not want you to tilt at windmills as I have done, because you get a good deal bruised, but take some hazard." Another warning was against the dangers of publicity to the doctor. The late Wilfred Trotter once said to him, "When the poison of publicity once gets into a doctor's veins there is no cure, medical or surgical." The general practitioner should choose his consultant because he had been impressed by his teaching or by what he had written or done, and not because some uninformed public clamour had brought him to the front.

Finally he paid a tribute to the dean of the school, Dr. Bolton, who had served in that office for 14 years, and was shortly retiring. A dean had the task of selecting the entry. "Give me the choice of the school entry and anybody else can have all the rest." A great school was a school with exceptional students. After all, the medical profession was what its individual members made it, and those members were chosen by the deans, so that the deans had the health of the profession in their hands. That was why he sometimes hoped that deans would have a prestige in the future which they did not enjoy at present, would hold a prized appointment, what was considered a great office in the State, so that they would talk of a great dean as they talked of a great headmaster or headmistress. Deans had an immense opportunity. If they could speak to young people twenty or thirty years their junior in such a way that the difference in years was not noticed on either side the effect on the school would be beyond all estimation.

"Perhaps young people to-day who feel that somehow all the greatness of life has gone and that beauty has vanished from the earth, and have a sense of grievance that their lives should have been matched with such ill times, may have a word of reassurance. A few days ago I was in one of the loveliest of Italian bays, and 36 hours later I was at my cottage in England. I put my bags in the hall and went out to the meadow where the cows were whisking the flies away with their tails, and the rooks were rising with a great cawing, a black cloud against the blue sky, and the mowing machine was heard in the distance, and it came upon me all at once that there is no country in the world which is a patch on England, and with their tolerance and good nature and fair minds no people half so civilized as our own countrymen."

A vote of thanks to Lord Moran was proposed by Mr. L. E. C. Norbury and seconded by Dr. Hazel Chodak Gregory.

MIDDLESEX HOSPITAL SCHOOL DINNER

Middlesex Hospital men past and present to the number of 200 dined together at the Savoy Hotel on Sept. 28. It was recalled that the previous reunion was held on the fateful night in September, 1938, when Mr. Chamberlain flew back from Munich. The speeches were largely a recounting of hospital and school happenings during seven eventful years. The Hon. J. J. Astor, who presided, spoke in thankfulness of the survival of the hospital amid the hazards of war. The total casualties were one member of the Friends Ambulance Unit killed, one seriously wounded, a number of patients injured, chiefly by flying glass, and a certain amount of structural damage. The plans for the future of Middlesex which had been worked out before the war had not been altered except in minor details. The celebration of the bicentenary of the hospital, due this year, had been postponed until 1946.

According to tradition, the responses to the toast of "The School" were made by the Dean, Dr. H. E. A. Boldero, and the senior Broderib scholar, Mr. A. S. Burgen. Dr. Boldero described wartime vicissitudes, the early migration of the pre-clinical school to Bristol and the dispersion of the clinical students among the sector hospitals. He said that there were now eleven vacancies on the medical and surgical staff, some of which had arisen owing to normal retirements, but others, unhappily, through the cutting short of promising careers. These were vacancies that must be filled, but wisely and not hurriedly. Sir Alfred Webb-Johnson, P.R.C.S., in proposing the health of the Chairman, mentioned that twenty-five years ago Col. Astor, by a most generous gift, which remained anonymous for a very long period, endowed the chair of physiology. Since then he had been a benefactor to the hospital on many occasions. In him, as chairman of the hospital, the staff felt that they had a true friend, one who understood the spirit of the voluntary hospital whereby the staff were part of it, and not in the mere relation of employed to employer. He hoped that in the future plans for Middlesex there would be a centre where the members of the staff could carry on their private consultations with the background of the hospital behind them. It was not very important that a surgeon should have Chippendale chairs in his consulting-room, but he could render better service if he had at his immediate command the best and most modern aids in diagnosis and treatment.

Among the guests at the dinner were the President of the Royal College of Physicians, the Directors-General of the Medical Services of the Royal Navy, the Army, and the Royal Air Force, Sir Lionel Whitby, Regius Professor of Physic at Cambridge, Sir Allen Daley, chief medical officer of the L.C.C., and the Mayor of St. Marylebone.

Correspondence

The Urgent Needs of Civil Medicine

Sir,—In your current issue you publish a letter from Professors Huggett and Killick on the educational conditions of our universities and medical schools.

The letter is a temperate one, and will command a very considerable degree of assent. Incidentally it would appear to make complaint of action by the Services Committee which is not justified, but the sentence on which I wish specially to comment is that in which it says, "The needs of the universities and medical schools must, therefore, be regarded as having the same degree of urgency as the needs of other branches of civil medicine."

From my experience of the demands made upon the Services Committee the time for this is premature. The needs of civil medicine which are most urgent are those of the general practitioner. Hundreds of aged general practitioners are continuing to work long after they both wish and ought to retire. Many have broken down, more are breaking down, not a few have died, a few have committed suicide. Their patients are suffering from lack of attention, and this quite unavoidably. Only just less urgent are the needs of hospitals, and these may be regarded as including the needs for consultant and specialist services. Hospitals are short of staffs as they have never been, this also when the demands upon them are greater than they ever were. Public health services are stripped to the bone, and the necessity for their reinforcement is very great.

The needs of these services are present and everyday, those of universities and teaching schools are more for the future. It is my considered opinion that until this winter, at least, is over, and probably well into next year, the urgency of the needs of teaching must rank behind that of these everyday services. After then things may be different.

There is a further difficulty in allowing, not to say encouraging, newly qualified practitioners to take university posts. Recruitment of practitioners into the Services is continuing, and is likely to continue. The only source for recruitment is the young practitioner. This difficulty may not be insurmountable, but it does exist. It must be remembered that any diversion of young practitioners to university or other civilian posts would mean a corresponding retardation of demobilization.—I am, etc.,

PETER MACDONALD,
Chairman, Services Committee, C.M.W.C.

York.

Neurologist and Neurosurgeon

Sir,—The Society of British Neurological Surgeons is about to draw up a scheme for the training of the neurosurgeon. I must take the letter by Dr. F. M. R. Walshe and Dr. C. P. Symonds (Sept. 15, p. 364), who will always be heard with respect, as an invitation to express my own views, even though time proves that they do not coincide with the consensus of my brethren.

Your correspondents are concerned about an ideological concept of the neurologist, but since this does not admit of realistic treatment they resolve the problem into a statement of the relative function and required training of the medical neurologist and the neurosurgeon. They regret that the medical neurologist has lost too much valuable clinical material to the latter, and believe that this stunts the growth of the physician. It is a fact that the neurological physician no longer sees each and every case of suspected brain tumour before it goes to the surgeon, as was the custom in former days. It needs little imagination to comprehend that this is disappointing to the physician, but it has happened in many branches of medicine and is a sign of (at least) commencing maturity.

What Dr. Walshe and Dr. Symonds do not say is that the state of affairs which causes them anxiety has not been brought about as the result of a deliberate policy of exclusion laid down, or likely to be laid down, by neurosurgeons, but has occurred as a natural process which needs a new adjustment—that of partnership. I am well aware that the emancipation which the neurosurgeon now enjoys carries with it heavy responsibilities. He is called upon to make the greatest contribution that he can to our knowledge of the nervous system (for which he has exceptional opportunities), and, more important from the humanitarian point of view, to avoid the infliction of unnecessary trauma.

On this latter point Dr. Walshe and Dr. Symonds have a good deal to say. It is true that the neurosurgeon may sometimes apply surgical means of diagnosis too soon; much more often he is called upon to apply them too late. His recollections of such instances are unquestionably an important factor in his occasional unnecessary recourse to his own special methods. However, no one needs to speak of the successes won by these means. Your correspondents adduce certain figures of Harvey Cushing's to show how much clinical material of a non-surgical type may come into a neurosurgical ward and run the risk of being operated on through mistaken diagnosis. On page 6 of the book to which they refer they will find a clear statement as to what comprised a "histologically unverified tumour." It should be borne in mind that the 2,000 tumours which formed the basis of Cushing's review were spread over the years 1901–31—i.e., during the years of growth of knowledge of the natural history of tumours. This was mostly long before the date of pneumography and the like, which Cushing was slow to adopt. It would be unwarrantable assumption that Cushing was not fully assisted in some of his errors as well as in many of his successes by the best available medical neurological opinion of the day. Neither medical neurologist nor neurosurgeon is impeccable, and it would be a fatal error to try to build the future on any other understanding. I do not believe that the idealistic concept of the neurologist set forth in your pages is free from such danger.

What deeply concerns us all is so to educate ourselves and our successors that mistakes shall be minimized. This will be done by the freest possible interchange of opinion between physician and surgeon (and, I would add, sometimes psychiatrist) in neurological material. The loadstone that draws the surgeon into neurosurgery is not surgical technique but neurology. We must do our utmost to see that the younger generation has a balanced training and adequate remuneration to enable a man to obtain it, a vital condition on which many planners are silent. I know from a long personal experience that a happy relationship, mutually educative, to say nothing of friendship, between the medical and surgical subdivisions of neurology is possible, and is, moreover, already exemplified in many neurological centres in this country and elsewhere. Any further schism, if such it be, will be prevented by the development of Regional Neurological Institutes with common laboratories and services, such as is planned for Manchester. No good will come of repressive action in which one branch seeks to dominate the other.—I am, etc.,

GEOFFREY JEFFERSON.

Manchester.

Treatment of Duodenal Ulcer

Sir,—I am glad to read Dr. A. H. Douthwaite's vigorous criticism (Sept. 22, p. 400) of this, that, or the other "cure" for duodenal ulceration as an incident in ambulatory treatment. As he points out, inadequate attention to the natural history of the lesion is responsible for much unwarranted attribution, and I am sure he will agree with me that almost incredible remissions are a familiar experience, not only through the apparent influence of such forms of therapy, but even despite what might be stigmatized as a criminal disregard for all orthodox precautions.

If patients (and doctors) are prepared to gamble on the chances of remissions and spontaneous cure there may be no harm in the administration of anything which contributes through its suggestive value. But if such ambulatory treatment is advanced as a reliable substitute for accepted orthodox procedure the danger can hardly be exaggerated, especially as it is only natural that the invitation to a procedure so much less irksome and inconvenient will be warmly welcomed.—I am, etc.,

ALDOPHE ABRAHAMS.

London, W.1.

Nerve Injuries in Children

Sir,—I was most interested to read Mr. H. S. Souttar's article on nerve injuries in children (Sept. 15, p. 349). In my limited experience I have had to deal with one such case which proved dramatically the truth of his statements and conclusions.

While acting as R.S.O. at the Bolton Royal Infirmary in 1937 a child was brought in to me one evening with a history that her mother had attempted to kill her by cutting her radial artery with a small knife. The child was aged about 4. On examination there was a small wound over the lower end of the radius, and it was obvious that extensive damage had been done to blood vessels, tendons, and nerves. An immediate operation was performed, and when the wound had been enlarged it was found that, with the exception of the ulnar artery, every single structure on the front of the wrist had been severed. The gash even extended into the pronator quadratus. With some reluctance, as I had seen enough of the sequelae of these injuries to discourage me, I set about the seemingly endless task of suturing all the tendons and the two nerves. I believe it took me well over two hours. The wound healed by primary union and the child went home after a reasonable stay in hospital.

After this I lost track of the case until about a year later I was sent for to the orthopaedic O.P.D. by the orthopaedic surgeon (Mr. S. M. Milner, of Manchester) and asked to examine the child. He asked me what the original injury had been, and I remember he expressed polite disbelief when I told him the extent of the damage. The record card, however, which was produced shortly, contained the notes made immediately after the operation. The child had made a full functional recovery, and the only evidence of what had happened was a transverse scar which was slightly adherent to the underlying tendons.

I can clearly remember the ease with which the nerves were found, and that chiefly by reason of their size; also the difficulty with which the tendons were identified and sutured, so much so that on several occasions during the operation I remarked on the apparent foolishness of the procedure I was indulging in. The result is all the more remarkable if one pauses for a moment to consider the usual aftermath of such an injury in an adult. I think it would be most interesting if others were to recount their experiences in this sphere, as the textbooks, with their usual reticence, have got but little to add to our knowledge of the subject.—I am, etc.,

Tralee, Co. Kerry. M. J. Horgan.

Sir,—Mr. H. S. Souttar (Sept. 15, p. 349) did well to stress the value of operation upon nerve injuries in children and adolescents. The results in cases at this age are so much speedier and more successful than similar operations performed in adults. The following is a brief case history which illustrates this point.

The patient was a girl, aged 14, who had sustained a complete lesion of the median nerve 20 months previously. The nerve had been sutured at the time, but neither motor nor sensory recovery was evident on examination. The lesion was 1½ in. above the wrist. Operation was undertaken and an inch of scar tissue excised. The freshened nerve ends were sutured, and the limb plastered with the elbow- and wrist-joint in flexion, to relieve tension, for 9 weeks. Return of sensation occurred over the thenar eminence at the sixth week. This was confirmed clinically. The rate of recovery far exceeded 7 mm. a day, being approximately 15 mm. a day. The patient had stated that sensation was returning after 4 weeks, but I did not believe this and failed to examine her at this stage. General sensory recovery had occurred by the twelfth week. By 3 months motor recovery of the thenar muscles was evident, and was well established by 6 months.

No adult case in which the median nerve has been repaired at this site in this peripheral nerve unit has recovered so quickly or so thoroughly; 5 mm. a day is the maximum rate of recovery.—I am, etc.,

E. Hambly,
Surgeon E.M.S., Royal National Orthopaedic Hospital.

Action of Rubber on Penicillin

Sir,—The experience of your correspondent F. A. R. Stammers (*Journal*, Sept. 22, p. 400) that synthetic rubber tubing used in a drip apparatus completely destroys penicillin in an hour or two, while natural rubber has almost no ill effect upon penicillin, seems to be at variance with the results of the work of S. T. Cowan (*Lancet*, Feb. 10, 1945, p. 178), whose experimental study of this problem indicates that natural rubber tubing can "in certain circumstances" inactivate some of the penicillin, especially after it has been repeatedly sterilized. Cowan points out that the validity of conclusions drawn from experiments of this kind depends upon the absence of contamination and the accuracy of the penicillin assays. He concludes that during continuous intramuscular infusion there is ample time for the destruction by contact with some kinds of tubing of 25 to 50% of the penicillin. He gives a simple method of testing the effect of rubber tubing upon penicillin.

Clearly there is room for more work on this problem, and it should be undertaken at once. It would be valuable to know, for example, whether any of the tubings now being made from plastic materials for surgical use have any effect upon penicillin. If they had not, these could be used for penicillin administration.

Perhaps I should add that I have myself no experience of the use of penicillin. I have merely had occasion to follow a good deal of the literature on penicillin, and Cowan's paper and Stammers's letter are the only ones on the effect of rubber on penicillin that I have seen.—I am, etc.,

Cambridge. Geoffrey Lapage.

Air Embolism

Sir,—Dr. P. H. Dalgleish (Aug. 25, p. 256) gave an interesting account of two cases of air embolism, both having occurred during refills. It may be of interest to remember that Dr. Clive Riviere, in his book *The Pneumothorax Treatment of Pulmonary Tuberculosis* (1st edition), written as long ago as 1917, states that most of the recorded cases of fatal gas embolism have occurred at refills and not at the initial operation. He also states the chances of gas embolism are increased by the use of tubing of too wide a bore, and he advised an internal diameter of 4 mm., and (p. 68), under refills, his instructions are: "Where a manometer reading fails at a refill, unless due to a blocked needle which can be cleared by a suitable stylet and a clear reading thus obtained, the needle should be withdrawn, resterilized, dried, and entered elsewhere."

Riviere's six rules for the prevention of air embolism stand the test of time. His Rule 6 is, "Do not use rubber and manometer tubing of needlessly large bore, nor have tubing of needless length." To his Rule 5, "Never pass a blunt stylet for clearing the needle without the use of stuffing box or rubber cap," I would add, "Make sure that the stylet does not project beyond the needle opening but is just the correct length and shape to plug the opening." Nurses occasionally mix up stylets, and I have seen many misfits and been presented with an apparatus with delivery tubing 6 ft. long.

Every possible precaution to avoid the dangerous results of lung puncture and air embolism has to be taken before any induction or refill. This takes time. Riviere's book perhaps gave fuller and better instructions on the actual technique of A.P. work than many later authors, and I believe many present A.P. workers would still find his book very helpful, although naturally in parts it is out of date. It was a very practical and wonderful book, and the first on A.P. treatment in our language, so that I think it deserves to be regarded as a classic. It certainly was an excellent guide and vade-mecum to many who started doing A.P.s in the early years of this century.—I am, etc.,

A. Niven Robertson.

Stovaine Anaesthesia

Sir,—Spinal anaesthetic drugs are considered heavy or light as compared with the specific gravity of the cerebrospinal fluid, which ranges between 1.003 and 1.007. Stovaine ampoules which are available in the market are Barker's and Chaput's, the specific gravity of the former being 1.025 and of the latter 1.080. Both are, therefore, definitely heavy, as well from the clinical findings as by virtue of their specific gravity. If the injection of stovaine is given with the patient in the sitting position, even between the second and third lumbar vertebrae, it at once gravitates down to the lowest part of the spinal column and into the sacral canal, and quickly settles down there in less than a minute and readily gets fixed. It is then difficult to get the solution to move upwards to affect even the lowest lumbar nerves, if there has been a little delay in making the patients lie down.

In a considerable number of cases it has been observed by me that even if the table is later on tilted in the Trendelenburg position, slight or steep, the stovaine solution afterwards does not move towards the head. This proves that stovaine is heavier than cerebrospinal fluid. It is therefore regrettable that in certain popular textbooks, particularly in *Manual of Surgery* by Rose and Carless, it is stated: "It can be used as either light or heavy solution." It needs to be pointed out that even when dissolved in alcohol the sp. gr. is not definitely

lightened, and it cannot be safely treated as a light solution. Hence students are misled about the properties of stovaine, and some surgeons are also not sure of the qualities of stovaine, and so might meet with a disaster. It should be definitely stated that stovaine always forms a hyperbaric solution. The maximum dose mentioned as 0.8 c.cm. can be exceeded. It is also stated: "It tends to give a rather big fall in blood pressure"; but it is not explained that this can be prevented or lessened by vasoconstrictors and other means.

In final M.B., B.S. examinations the students have been answering, if asked about stovaine, that it could be either light or heavy, and quoting the authority of Rose and Carless; so the examiner has to agree and mark them right. This is, therefore, to draw the attention of the authors and others to this wrong impression produced on the readers. Incidentally it shows the necessity for the lecturer in anaesthetics being appointed an additional examiner for at least viva-voce examination in anaesthetics in the final M.B., B.S., as at present the surgeons, who generally know precious little about the subject, pose before the candidates as experts in anaesthetics also, and the anaesthetist is deprived of his right as an examiner in the subject.

The toxic effects of stovaine together with the nerve-destructive action of alcohol would make the solution very undesirable for use in operations, and, in fact, an alcoholic solution should be condemned as a spinal anaesthetic with whatever drug it is used.—I am, etc.,

Lahore. K. E. Madan.

Rehabilitation of Fractured Limbs

Sir,—In the *Journal* of Sept. 8 (p. 332) there appears a short letter from Dr. R. Murray Barrow of the greatest importance. In one pregnant sentence—"the putting of fractures into plaster, leaving the soft tissues immobile for several weeks"—he exposes a disastrous turn of medical practice. I now shortly recount a few of the shocking results encountered in my practice.

(1) A woman of 55 with a tibio-fibular fracture close to the ankle was fitted in a London hospital with a tight plaster for weeks; when removed so shocking a position was disclosed that operation was required; result: death of the foot, amputation below the knee. (2) A street accident; simple fracture of both bones about 4 in. above the ankle was put in plaster; later, gangrene of the foot, amputation below the knee. (3) Colles's fracture in plaster for weeks; when released, semi-paresis of the arm; never recovered. (4) An old lady was knocked off her bicycle by a lorry, and her arm was fractured midway between wrist and elbow; for weeks it was in plaster, and when released was so weak and painful that she scarcely slept; at subsequent operation the median nerve was found to be held down by adhesions.

Under first-rate guidance with continuous watching good may be done, but as a common practice the results are terrible to contemplate. Your correspondent most truly writes: "The modern method seems to me to be distinctly retrograde and entails weeks of convalescing after union."

I was house-surgeon at Guy's 50 years ago. Arm fractures were splinted; femurs were fixed up with Hodgen's splints; fractures below the knee were all treated in Croft's splints—that is, two separate segments of flannel impregnated with plaster-of Paris held together by starch bandages, which were cut two days later and the plaster cast secured by bandages then. The modern craze for restoration of a limb to the "precise line" neglects the need for restoring the limb to use as quickly as possible. Surely a slight displacement of bone or a "hob" is a very small matter compared with loss of a limb or of function for months or years. With Colles's fracture the wrist was moved at least three times a week and the arm restored to use in about a month. The legs in the Croft splints were moved about in 10 days or so, after the bones were united, which, in my experience as house-surgeon, always occurred in under a fortnight.—I am, etc.,

Tilford, Surrey. Vaughan Pendred.

Mediastinal Emphysema after Tracheotomy

Sir,—The *Journal* of July 14 has just reached me in Košice, Eastern Slovakia, and I read with interest the memorandum by Mr. J. R. M. Whigham on mediastinal emphysema and bilateral pneumothorax after tracheotomy (p. 47). In this connexion the following notes might be of some interest.

An epidemic of diphtheria has been spreading in this region. There have been many severe cases of laryngeal diphtheria, some requiring tracheotomy. An 18-months-old boy was brought in suffering from diphtheria of the tonsils and the larynx. Tracheotomy was performed soon after admission for acute asphyxia. Breathing improved, but he died 6 hours later. The necropsy showed: (1) widespread swelling of the face and neck due to subcutaneous emphysema; (2) extensive mediastinal emphysema covering the heart, that looked as if it were bathed in soap bubbles; (3) thick diphtheritic pseudo-membranes covering the epiglottis and the mucosa of the larynx blocking the air passage; (4) purulent bronchitis and bronchopneumonia of the lower lobes of the lungs.

Subcutaneous and mediastinal emphysema is not very rare after tracheotomy and is due largely to technical reasons. Mr. P. Steiner, F.R.C.S.Ed., senior surgeon, General Hospital, Košice, points out that it is unavoidable for some air to leak out between the cannula and the edges of the tracheotomy opening in the trachea. If the skin were tightly closed round the cannula the patient would press air into the tissues when coughing or breathing forcibly. This could be avoided by not suturing the skin tightly round the cannula so that air escaping from the tracheotomy wound could get away freely.—I am, etc.,

I. Friedmann,
Pathologist, 1st Czechoslovak Medical Mission from England.

General Hospital, Kosice.

Acute Inversion of the Uterus

Sir,—I would like to add my experience in a case of acute incomplete puerperal inversion of the uterus in support of the simple method of replacement under hydraulic pressure described by Mr. J. V. O'Sullivan (Sept. 1, p. 282).

The patient, a primipara aged 35, was admitted to our maternity department in a condition of severe shock after a forceps delivery outside. Credé's expression had been attempted unsuccessfully for post-partum haemorrhage. On arrival the patient was extremely pale, collapsed, restless, and almost moribund. Her pulse was not perceptible and her blood pressure could not be recorded. She complained of severe lower abdominal pains and made efforts to expel the retained placenta. Treatment for shock was instituted. Abdominal examination revealed a deep funnel-shaped excavation where the fundus should have been. There was moderate vaginal bleeding and the ligated cord was protruding from the vagina. The perineum showed a deep laceration extending into the sphincter ani.

Forty minutes after admission the patient showed improvement from her almost moribund condition. Soon afterwards she started bleeding freely again, so I was forced to perform a manual removal of the placenta under light general anaesthesia. Vaginally, an incomplete inversion of the uterus was confirmed. The placenta was adherent to the apex of the inversion and was stripped off easily. On the advice of Mr. O'Sullivan I employed the method he recommended. A warm "dettol" douche, from a douche-can 2½ feet above the level of the patient, was run into the vagina with a Bozeman catheter and the vagina ballooned out. The right forearm blocked the vulva. It was interesting to feel how the over-distension of the vagina with the fluid caused the dilatation of the constricting cervix. Gentle digital pressure against the inverted fundus, together with the fluid pressure, replaced the uterus with ease in a very short time. The complete perineal tear was sutured speedily. After reposition and further shock therapy, including methedrine 30 mg., the patient improved dramatically. She made an uneventful recovery, and was discharged in perfect health on the 22nd day after delivery.

There must be several such serious cases annually in every country. O'Sullivan's simple method meets the desperate situation better than any other I have known; to encourage its further practice and lower the present high mortality I considered it most important that this further case should be reported.—I am, etc.,

Walter Spitzer,
Senior Obstetrician and Gynaecologist, Kingston County Hospital, Kingston.

Kingston-on-Thames.

Toxicity of Magnesium

Sir,—May I be allowed to answer your annotation (Sept. 22, p. 393) on this subject. I believe I was the first and original proposer of intravenous injection of magnesium sulphate for angiospasm (*Lancet*, 1933). Since then I probably performed more than a thousand of such injections without any distress or alarm to myself or to the patient. Briefly the rules are: start with the patient in a recumbent position; never use a solution more than 10% in strength; add glucose; start with 1 gramme of magnesium.

So far as I know, in one of the voluntary hospitals an elderly patient died during the intravenous injection of magnesium; he suffered from coronary sclerosis. I do not know if all of the above-mentioned precautions were observed. Nor did I have any complications with intramuscular injections, providing the strength is 10%. It is very well tolerated.—I am, etc.,

London, E.1. N. Pines.

Chronic Pulmonary Tuberculosis

Sir,—The primary tuberculous infection of the lung does not usually lead to this form of disease, though it may break down with the formation of pneumonic tuberculosis, which can persist into the chronic stage. I have seen one such case in an adult and three in children during the present year. Usually the primary infection is recovered from. Later, due to reinfection or breakdown from an apparently healed lesion, when circumstances are suitable, chronic pulmonary tuberculosis begins.

I was interested to discover whether a patient who becomes cured can ever get the disease again. After five years' experience in large sanatoria (300 and 500 beds respectively) and five years' dispensary work at five busy tuberculosis dispensaries in an area with a population of 250,000 I am still unable to give a definite answer. Of course, few patients recover so completely that there is no remaining *x*-ray evidence of disease. I have, however, seen two such cases in the last year. Usually cure is shown by fibrosis and calcification. When cure is thought to be certain, live tubercle bacilli may persist even in calcified foci (Pagel). So difficult is the problem of deciding when a case is cured that guidance is provided in Ministry of Health Memorandum 37 T. revised, as follows—*Quiescent:* No clinical evidence of activity, and any signs present are compatible with a healed lesion. *Arrested:* A lesion quiescent two years. *Recovered:* Arrested three years. Only then may a case be removed from the register. Statistics show that if a patient has been apparently cured for five years, then he is likely to remain so. Pottenger years ago arrived at a similar conclusion.

Now, disease may be "arrested" with either little or gross *x*-ray evidence. In the latter case it is of course not possible to be certain the disease is in fact healed: it is more than likely that active lesions are shut off from the rest of the lung by fibrous tissue. Of the few cases returned to the register during the last five years the majority would come into the above category. Two patients who were returned to the register with active lesions had been classed as recovered when taken off the books. Unfortunately these two cases were diagnosed in the days before *x* rays were in universal use. As their sputa had never contained tubercle bacilli it is impossible to prove the original diagnosis.

I have searched through thousands of records and *x*-ray films in pursuit of a recurrent case of pulmonary tuberculosis of the adult type. In conclusion, I have to admit that I have yet to come across such a patient. As a "recovered" case rarely breaks down, a patient whose disease is actually cured probably has such a high resistance to disease that he will never suffer again from this scourge of mankind.—I am, etc.,

Pontefract. C. Poniedel, M.B., Ch.B.

B.L.A. Surgery

Sir,—The authors of the excellent article on B.L.A. surgery (Sept. 22, p. 377) repeat an error (non-medical) when they state that Walcheren was captured by the Canadians. This "toughest of small amphibious operations" was carried out in grand style by the 52nd Lowland Division under Gen. Hakewill-Smith, attacking across the Scheldt and along the causeway. I happened to be present in a passive role and can testify to the excellent work under terrible conditions done by the medical units and R.M.O.s of that division. It is only right that they should have the credit.—I am, etc.,

"Ex-A.D.M.S."

Safe Milk

Sir,—I have just opened the *Journal* of Sept. 8 with Dr. D. J. Gair Johnston's most pertinent plea (p. 330) for the domestic sterilization of milk. But he omits to mention the weightiest reason for preferring the method—which is that it greatly increases the probability that the sterilized milk will still be sterile when it is drunk. It is too often forgotten that the attendants at pasteurization plants are not bacteriologists. A colleague told me that he had been taken to see a machine which poured the sterile milk into the bottles and covered them automatically with a sterile cover. The bottles were sterilized in a separate machine and fed into this pasteurization and bottling apparatus by a boy, who picked them up three at a time, with one dirty finger in each of two and a dirty thumb in the third. Within the last few years I have myself had pasteurized milk, delivered at my house, go sour within twelve hours in cold weather in the unopened "sterile" bottle; but of course with pasteurized milk there is no guarantee that lactic acid will appear as a danger signal as the flora multiply.—I am, etc.,

C.M.F. N. P. Bruce.

Doctors and the Social Trend

Sir,—At the ninth International Congress on Dermatology, held in Budapest in the autumn of 1935, I was chairman of the sixth commission, dealing with general medical problems. One of these was whether "socialization of medicine is desirable." The Congress attracted over 1,000 members from every part of the civilized world and there was a very representative gathering of delegates to discuss this question. A "good round no" was recorded by all the delegates except the three coming from Russia, and the dislike of socialization was especially marked in those countries, outside Russia, in which the experiment had been tried.

We are informed by Dr. P. G. S. Davis (Sept. 22, p. 405) that of the thirteen medical M.P.s in the present Parliament eight are members of the Socialist Medical Association. This association has been described by its president in a letter to the Press as a "solely political organization." I am informed that its medical membership is less than 1% of the whole body of practitioners on the British *Medical Register*, contrasting in this respect with the membership of the B.M.A., which now, it is stated, represents a membership of something like 75% of the registered profession. The present Government will doubtless accept its medical guidance largely from the Socialist Medical Association, which is in effect an annexe of the Socialist Party, and it is important for doctors to realize that political and not medical considerations will be the motive of the changes in medical practice which, it is said, form part of the programme of the Socialist Party. That political aim may, I think, be summed up as the pursuit of "social equality," to be achieved, if it is indeed at all possible, by achieving uniformity at the lowest existing level.

That has been, I submit, the aim and, already in some measure, the effect of the Education Act, which is floundering helplessly towards a standstill by reason of the critical shortage of teachers. It is not, I think, altogether surprising that the Minister of Education in the late Government seized the first opportunity of exchanging his post for another department in the short-lived "caretaker" administration. For fulfilment of the promises of the Act from 70,000 to 100,000 new recruits to the teaching profession are called for. To meet this demand Mr. Butler *two years ago* inaugurated a scheme of emergency training of teachers by which recruits after one year's training and without passing any examination would be introduced into the schools as "qualified teachers." The present position of this supply was described in a recent answer to me (*Hansard*, Aug. 22, 1945): "18 teachers so trained have been admitted to the schools and 360 are in training." It is a simple arithmetical calculation to forecast how long it will take at this rate to meet the demand!

The supply of doctors to work the proposals of the White Paper, it has been calculated, would have to be three times as large as the present available total of qualified practitioners, and doctors, I submit, cannot be improvised on the same lines as have been proposed for teachers. During one of the debates on the health services a "back-bencher" on the Socialist side urged the Minister of Health to side-track the doctors and proceed with his proposals without their co-operation, but whether the public will be satisfied with any such solution is quite another matter.

The position of medicine in Soviet Russia is extremely difficult to ascertain because of the "iron curtain" (as Churchill called it) which shuts out Russia and countries occupied by it from observation by the rest of the world. But the position of

research in medicine as well as in general science is, I would suggest, a reliable index of the position of both medicine and science, and publicity for research is clearly an aim of Soviet Russia. An analysis of that position in various countries has been offered in a recent publication (*Science and the Planned State*) by Dr. J. R. Baker, lecturer in zoology in the University of Oxford. On that analysis Russia is by far the most backward of all European nations in research both in medicine and in science. By this argument socialization of medicine, in force in Russia for more than two decades, has conspicuously failed.—I am, etc.,

House of Commons. E. Graham-Little.

Training for Released Service Doctors

Sir,—Mr. H. S. Souttar in his Presidential Address before the B.M.A. on the return of the doctor (*Journal*, Aug. 4, p. 163) refers to the scheme for training released doctors. His Class III provides for men who wish to hold registrar jobs, for which they will receive £550 a year. There are many M.O.s who are keen to undertake such work in the near future and have been seeking advice about the best centre for which to apply. But are these posts available? It seems to depend on who is paying for the scheme. If the Government pays for each registrar, the teaching hospitals will no doubt accept a considerable number and may be able to provide for all the applicants. If, however, the medical schools are expected to provide the funds from their own grants, it seems unlikely that the required number of such posts will be available.

As this is an urgent problem and one is being asked about it by those who are soon to be released, could some authoritative statement be issued so as to avoid a lot of keen young doctors being disappointed?—I am, etc.,

F. F. Hellier,
Lieut.-Col., R.A.M.C.

Bitterness

Sir,—Major H. B. Stallard's letter (Sept. 22, p. 407) comes like the calm voice of reason amid the cacophonous sounds of a family squabble. Those who, like myself, saw the war coming, joined the Territorial Army or the equivalent, and served throughout all or most of the time in field units, have no wish to fling away in bitterness what they have gained by seeing where their duty lay and doing it.

Maybe we have lost professionally; maybe we can never hope to compete with our brethren who stayed on at hospital and rose through higher degrees to junior honorary posts. But a man cannot have everything in life; and where we have lost on the one count, perhaps we have gained something in the sphere of less ponderable qualities. Certainly, speaking for myself, I feel I have gained something which I find it hard to define; perhaps it is most closely related to what I have seen of self-sacrifice and the "mucking-in" of the ordinary soldier for the common good.

I shall always remember the words of a friend, written to me shortly before he was killed, in answer to a rather carping letter of mine: "Don't let's spoil the first fine careless rapture of having been in from the beginning by calculating now whether it was worth the cost or not." A man is a certain kind of person, who does certain kinds of things. Bitterness that those things do not always bring in the kind of return we should like will get us nowhere. Therefore, thankful that my lot has not been, as Major Stallard tells us, the sea, six feet of African sand or European earth, I and, I think, very many of my fellows are content to do some good where we find it to be done, without bitterness or malice towards our more highly qualified contemporaries.—I am, etc.,

J. M. G. Wilson.

Sir,—In the *Journal* of Sept. 22 (p. 407) there is a timely letter from Major Stallard. As he says, there is much bitterness felt by Service medical officers, and the bitterness is too often more than justified. For a long time now your correspondence columns have carried letters complaining of the utter wastage of medical man-power in the Services, the hardships and gross overwork of general practitioners, and the relatively fortunate position of the young specialists in E.M.S. hospitals. These are facts, and bickerings among ourselves will not alter them. Our only hope is in closer unity, preferably through the B.M.A., whose greatly increased membership during the war shows that most of us do want some central medical body to which we can give loyalty in exchange for the strongest possible presentation of our cause, anywhere and always.

Major Stallard was fortunate in spending nearly half his service in hospital. For seventy-three barren months this had eluded me and many of my colleagues. The time wasted on so-called sanitation, administration, and stores accounting is a dead loss and must be written off as an offering to the war effort; perhaps it might rank as honourably as a minor wound. At least these things were done, and it is better that they should be done by a doctor than left undone. The folly of wasting doctors on such work is not ours. Stallard's experience in meeting fine men has been mine also. A medical officer meets high and low alike, and I have had the privilege of serving with some of the finest men and women imaginable. High among these I would place my own colleagues. They also were usually on uncongenial work, but, as a rule, they have done that work well, and shown professional skill, friendliness, and ethical conduct, which made the fact of our meeting transcend the circumstances. These doctors have been Naval, Army, and Air Force, British civilians, and medical officers of the American, Canadian, Australian, South African, and Polish Forces. Many times have we exchanged grumbles about our several lots, but we have worked and played together in harmony.

I suggest that as each is released he should become an active member of his local Division of the B.M.A., and make known to his representative just what he thinks can be done to make Service medicine attractive. If this were done, your committees would receive all the constructive ideas bred of our individual search for better things; and a strengthened Association could put before the Government a scheme for a medical service so good that the competition would be to get into it, not out of it. Unanimous support for our own Association would greatly improve our professional relations with each other, and would forestall any measures of coercion based on lack of unity.—I am, etc.,

Waterbeach, Cambridge. J. L. Brown,
Squadron Leader, R.A.F.

Infant Mortality and Social Conditions

Sir,—The leading article in your issue of Sept. 22 (p. 392) headed "Infant Mortality and Social Conditions" is mainly occupied with comments on a recent paper (Woolf and Waterhouse, 1945) of which I am senior author. Every statement it makes about our paper is untrue and worded in the way most calculated to arouse prejudice in the mind of the medical reader. To prove this it is only necessary to give parallel quotations.

Your contributor writes:

> "Apparently public health workers and authorities have deluded themselves for years by assuming that infant mortality was influenced by complex factors and that medical science and improved mothercraft could affect this rate."

Nothing could be more calculated to antagonize medical men than the insinuation that we regard their devoted efforts as of no value. But the truth is that we give a detailed discussion, including six diagrams, of the fall in infant mortality over the past 70 years, that we pay a well-deserved tribute to the fight for maternity and child welfare put up by the late Sir Arthur Newsholme against the obscurantists of his day, and that we clearly state this conclusion:

> "The whole improvement can be attributed to such things as better housing, feeding, mothercraft, and sanitation, reduction of the virulence of pathogens, and so on—all those agencies covered by the word 'environment' when it is used in opposition to 'heredity'."

Again, your contributor writes:

> "Between 1911 and 1931 the infant mortality of Social Class V was halved, due, the authors state, to improvement in environment. The mortality of Social Classes I to IV also declined at approximately the same rate, and it seems more reasonable to suggest that a factor independent of social class was responsible for a large measure of this improvement."

In our paper we give a vivid diagram and a detailed discussion of the fall of infant mortality in all social classes, and the effect is plainly ascribed to "such things as more adequate public health measures, more efficient choice of foodstuffs, better

mothercraft," all of which are improvements that manifestly apply to rich as well as poor.

Your contributor pours heavy scorn on our conclusion that a rate of 23.1 could be attained by the elimination of deleterious environmental influences. Yet he himself points out that the present rate, for 1944, is 46, and also states that "it is generally acknowledged that a further reduction is possible, probably to one-half of the present rate." One-half of 46 is 23. That is the very figure that emerges from our statistical analysis.

Your contributor quotes our conclusion that many infant deaths are associated with four social agencies—overcrowding, low-paid occupations, unemployment, and industrial employment of women. He casts doubt on these results, "since in 1943 and 1944, when enemy action had made the housing position worse and the employment of women in industry was on a higher scale than ever before, the figures for infant mortality were 49 and 46, the lowest values ever recorded in England and Wales."

Your contributor says that "strict objectivity is needed." It certainly is. We specified four social factors. During the war two got worse—overcrowding, and work by women. Your contributor mentions these. But how about unemployment, which was completely eliminated? How about wage rates? During the war, what with the levelling up of the pay of the lowest-paid workers, what with extensive overtime, and what with the extra milk and dietary supplements available to all babies and to pregnant and nursing women, the nutritional level of the baby in the poorest home was probably raised to a level similar to that of the highest-paid workers before the war. Low wages as a causative factor in infant mortality can be regarded as having been virtually eliminated. In his zeal for "strict objectivity" your contributor chooses to ignore both unemployment and wage levels. Overcrowding and work by women have got worse, and unemployment and low wages have been knocked out. The net result is a fall in the rate from 61.7 (the average for 1928–38, to which our calculations relate) to 47.5 (the average for 1943–4), being a decline of 14.2. Here is a useful test of our quantitative conclusions. Let us see how they fare.

In our paper we give the following estimates of the reductions in the rate to be expected by complete elimination of the poverty symptoms concerned: overcrowding, 13.8; unemployment, 8.0; low wages, 10.3; work by women, 5.3. Elimination of unemployment and low wages would give an expected reduction of 8.0+10.3, which equals 18.3. There are good reasons for supposing that the rises attributable to housing and work by women will not be very big.

Overcrowding.—The destruction of houses can be partly offset by the absence of a large part of the population on war service. Probably more important is the effect of evacuation. Infant mortality in big towns before the war averaged more than 10 points above the rural rate. A substantial proportion of babies were withdrawn to the country, reducing their mortality risk by a figure of this order. On housing, the pluses and minuses probably pretty well cancel out.

Work by Women.—The deleterious effect on the infant was largely due before the war to lack of care while his mother was at work. Wartime nurseries and other arrangements minimized these dangers for babies of munition workers; and, in any case, pregnant and nursing women escaped industrial conscription.

The summing-up is as follows:

Expected fall by elimination of unemployment and low wages	18.3
Observed fall	14.2
Attributable to worse housing and work by women ..	4.1

I think any reasonable person will agree that our peacetime analysis passes with flying colours the test of extrapolation to wartime conditions.

One final sample of your contributor's methods. He writes: "They were, apparently, so enamoured of their lengthy arithmetical processes that they overlooked the first lesson in statistics—i.e., that correlation is not necessarily causation." Your contributor falters in his quest for "strict objectivity." For the facts are that we did not venture to use our regression equations as the basis of social or medical conclusions until we had carefully examined every reasonable objection to their validity. The greater part of our first section is taken up with eliminating the possibility that our effects are due to hereditary differences in viability at different social levels. In our fourth section we critically examine our social indices with respect to their accuracy and relevance. In our seventh section we discuss seriatim the statistical and social objections that might be advanced to regarding our equations as a valid description of the phenomena under discussion. Only after a full examination of possible contraindications do we proceed to draw up a final balance-sheet.—I am, etc.,

Usher Institute of Public Health, Edinburgh. B. Woolf.

Reference

Woolf and Waterhouse (1945). *J. Hyg.*, Camb., **44**, 67.

Alien Doctors

Sir,—Copies of the *Journal* take some time to arrive in India, so this letter will appear somewhat out-dated. I have followed with interest the correspondence on alien doctors practising in Great Britain, and would like to voice the great anxiety felt by members of the profession over-seas about their continued presence in the United Kingdom now that hostilities have ceased. The feeling is that, unless the Government asks them to leave now, they will become so firmly entrenched that they may become a permanency.

In spite of the views expressed by Capt. Joseph (July 14, p. 66) it is well known that a very large number are entrenched in and around Harley Street and all over London, and that of these a disproportionately small number have featured in the Services during the war. Incidentally, Capt. Joseph's attack on Dr. Wm. A. O'Connor and on Irish doctors generally was greatly resented here, where many Irish doctors from both Eire and Great Britain have volunteered for service and have done excellent work. I am not Irish, so I speak without bias.

I hope you will publish this letter, which represents the views of many Service doctors in Burma and India with whom I have discussed the matter.—I am, etc.,

John Nesfield,
Capt., R.A.M.C.

Deolali South, India.

An Institute of Medical Photography

Sir,—The article on medical photography in hospital (Sept. 8, p. 328) will be welcomed by all who are interested in photography. While agreeing with the urgent need for a body such as the proposed "Institute of Medical Photography" I would point out the undesirability of unnecessary duplication of institutions devoted to photography. The Royal Photographic Society is a national body whose aim is the advance of photography in all its aspects, and at the present time it has under consideration the formation of a group devoted to medical photography. I would suggest that before an independent Institute of Medical Photography be inaugurated, the possible advantages of functioning as a group of the Royal Photographic Society should be investigated.—I am, etc.,

H. Baines,
President,
Royal Photographic Society.

16, Princes Gate, S.W.7.

Sir,—While endorsing a few of the statements mentioned in the article on medical photography in hospital, I would like to point out a few facts, which, from personal experience as well as experience of others, I would like your correspondent and others interested in medical photography to know.

To say "the first thing needed for a medical photographic department is a complete system of air conditioning" is absurd. The first thing needed is a competent photographer. Equally so it is absurd to employ the staff recommended. There is not the slightest use trying to send patients away to some other place to have their photographs taken; either they cannot or will not go. Quite a lot of work is urgent and requires a photographer to be always on the spot. An institute of medical photography would no doubt be very desirable, but is there any need for yet another such photographic organization, when already three bodies exist in the Royal Photographic Society, the Association for Scientific Photography, and the Institute of British Photographers? If mobile units are to go "wherever they are wanted" is this the most economical and efficient way?

What is most urgently required is a powerful aid towards trying to get hospitals to provide a competent photographer

with the necessary apparatus and accommodation, rather than writing about "utopian schemes" such as those indicated in the article in question.—I am, etc.,

H. Mandiwall,
Chairman, Medical Group,
Association for Scientific Photography.

Tavistock House North,
London, W.C.1.

Medical Supplies for Singapore: An Appeal

Sir,—Singapore has fallen and the aftermath of war must now be fought. The Japanese (or Nipponese as we call them in the Far East) did literally nothing for Allied prisoners of war, internees, and the local population. I spent a week in Singapore while serving in H.M.S. *Sussex*, so my information is first-hand. By the time this letter is published the majority of Allied prisoners and internees will have left, but the local civilians remain and are being looked after by former internees who have volunteered to stay. The chief of these is the Anglican Bishop of Singapore, and he has arranged for the distribution of any medical supplies that may be sent. Malaria, dysentery, beriberi, pellagra, other deficiency diseases are but a few of the many diseases present. As an illustration of how rampant some diseases are: there is among the local population 80% chronic malaria and 1,000 fresh cases a month. Many need urgent attention, which only the necessary medical supplies can ensure. You can make no finer contribution to their welfare than by aiding the work of the Bishop of Singapore. Many are the humane calls made upon the good in heart, so may I appeal to institutions and individuals for any drugs they can spare, especially those used in the treatment of the diseases mentioned above? Please send them direct to the Bishop of Singapore, The Cathedral House, Singapore, who will be more than pleased to receive them.—I am, etc.,

Iain M. MacLean,
Surg. Lieut., R.N.V.R.

Admiralty, S.W.1.

The Services

Major (Temp.) R. Stuppel, R.A.M.C. (died of wounds), has been mentioned in dispatches in recognition of gallant and distinguished services in the field.

Capt. A. W. Lipmann-Kessel, R.A.M.C., has been appointed M.B.E. (Military Division) in recognition of gallant and distinguished services in the field, and has been awarded the M.C. in recognition of gallant and distinguished services at Arnhem.

Lieut. E. Gartside, R.A.M.C., has been mentioned in dispatches in recognition of gallant and distinguished services in the defence of Calais in May, 1940.

Acting Wing Cmdr. J. P. Huins, O.B.E., A.F.C., A.A.F., has been awarded a Bar to the Air Force Cross, and Acting Wing Cmdr. R. H. Winfield, D.F.C., A.F.C., R.A.F.O., has been commended for valuable service in the air.

The following appointments and awards have been announced in recognition of gallant and distinguished services in Italy:

C.B.E. (*Military Division*).—Brig. (local) H. C. Edwards and Col. (Temp.) T. D. Inch, O.B.E., M.C., R.A.M.C.

O.B.E. (*Military Division*).—Col. (Temp.) J. Kinnear, T.D.; Lieut.-Cols. (Temp.) W. N. J. Clarke, R. T. Grant, J. A. MacDougall, F. H. Taylor, A. W. S. Thompson, and E. S. Watson, R.A.M.C.; and Col. (Temp.) Dev Datt, I.A.M.C.

M.B.E. (*Military Division*).—Majors (Temp.) J. Leiper, K. C. Mallen, E. L. May, E. R. R. Mellon, A. S. Ramsey, and F. E. Wheeler; Capts. I. Camrass and J. McLean; Lieut. J. Hill, R.A.M.C.; and Major (Temp.) L. C. R. Emmett, I.A.M.C.

M.C.—Capts. G. R. Evans and M. S. Howe, R.A.M.C.

The following medical officers have been mentioned in dispatches in recognition of gallant and distinguished services in Burma:

Col. (Temp.) J. P. Macnamara; Lieut.-Cols. (Temp) H. J. Croot, C. L. Hay-Shunker, J. F. Heslop, R. C. Langford, and J. R. Owen; Lieut.-Col. (Acting) J. M. McIntosh; Major G. W. Greig; Majors (Temp.) G. T. Ashley, J. Brown, J. M. Clow, M.B.E., J. O. Collin, T. E. Henderson, E. L. O. Hood, C. H. Hoskyn, G. J. G. Keys, J. D. MacCallum, W. O'Callaghan, and W. H. Wolstenholme; Major (Acting) T. K. Howat; Capts. G. M. Abraham, N. C. Burnley-Jones, M. Caturani, R. G. Forrest, J. B. Great-Rex, J. K. Hampshire, J. Harris, T. B. Harrison, M. H. Hughes, G. Kilgour, H. A. Kreiser, J. K. H. McCullough, P. H. Nankivell, B. Rado, J. H. Rees, R. W. Tibbetts, W. T. Walker, and G. L. Whitmore; Capts. (Temp.) J. M. McLean and J. A. McPherson, R.A.M.C. Lieut.-Col. T. J. Davidson; Lieut.-Cols. (Temp.) V. D. Gordon, W. McN. Niblock, and A. E. Stevens; Major W. C. Templeton; Majors (Temp.) L. M. Kelly, M.B.E., M. K. Krishnamurti, R. I. Krishnaswamy, and G. B. R. Walkey; Major (Acting) J. G. Webb; Capts. B. R. Irani, K. S. Grewal, K. B. R. Rao, L. N. Budhraja, M.B.E., N. N. Narayen, P. Singh, P. C. Nedungadi, S. Ranganathan, and Capt. Nuruddin; Lieuts. D. Barua, P. Gogoi, and R. J. Chandra, I.M.S. Major (Temp.) J. Edwards; Capts. B. G. Kiddle, M.C., M. P. McMurray, M. Imamuzzafar, and R. P. Bhatia; Lieuts. A. Rashid, C. M. Patnaik, and O. P. Trehon, I.A.M.C.

Freed in the Far East.—Lieut.-Col. J. Huston, Capts. R. H. Cuthbert, E. J. Emery, R. L. Lancaster, L. D. Stone, and R. G. B. Young, R.A.M.C.; Fl. Lieuts. A. N. H. Peach and A. F. Rutherford, R.A.F.V.R.

Obituary

ERNEST WARD, M.D., F.R.C.S.

Members of the British Medical Association, especially those engaged in its central work, will learn with regret of the death on Sept. 21 of Dr. Ernest Ward of Paignton, Devon, a familiar figure at its Annual Representative Meetings for fourteen years. For a long time past he had been suffering from a hopeless malady, but he had fought against it with characteristic stubbornness and had continued much of his public work.

Ernest Ward was born in Yorkshire in 1877, the son of Sir John Ward, who was closely associated with the municipal life of Leeds, was twice mayor of that city and one of its earliest lord mayors. He entered Clare College, Cambridge, in 1896, gaining first-class honours in the Natural Sciences Tripos, Parts I and II. He received his clinical training at the London Hospital and qualified in 1903, becoming a Fellow of the Royal College of Surgeons in 1906 and taking the M.D. of his university in the following year. After serving for a time as clinical assistant at the Belgrave Hospital for Children in London and as assistant medical officer, Queen Alexandra Sanatorium, Davos, he settled in general practice in Devonshire. He was proud to be known as a general practitioner, though on some subjects, notably surgical tuberculosis, he was a specialist. For many years he was tuberculosis officer for South Devon. He interested himself in tuberculosis in all its aspects and was president of the Tuberculosis Society of Great Britain and honorary secretary of the Tuberculosis Group of the Society of Medical Officers of Health. His outstanding achievement was the foundation of the Joint Tuberculosis Council in 1924—a body intended to co-ordinate all tuberculosis activities—and he guided its work for 14 years. Many reports of its proceedings issued from his pen, and he was associated particularly with its investigation into the status of nurses engaged in tuberculosis work and in the evidence which it gave before the Royal Commission on Local Government which preceded the Act of 1929. In the Society of Medical Officers of Health, of which he was at one time president, and in the B.M.A., Ward rendered conspicuous service. He was twice chairman of the Torquay Division of the Association, in 1927–8 and in 1940–1, and he served as its representative from 1927 until the early 'forties. He did good work also on some headquarters committees. When the Annual Meeting of the Association was held in his own locality in 1938 he was president of the Section of Tuberculosis. Locally he was held in great esteem by his colleagues, over ninety of whom subscribed to a testimonial presented to him in 1943 on his retirement from the post of tuberculosis officer. He had been president of the Torquay and District Medical Society. In his earlier career he did a good deal of translation; he was responsible for an English edition of Broca's *Ligations and Amputations* and was co-translator of *Urgent Surgery* by Félix Lejars. In 1929 he published *Medical Adventure: Some Experiences of a General Practitioner*, and followed it up the next year with a similar work of professional reminiscences.

On the platform Ernest Ward appeared a somewhat aggressive personality. Debate when he rose was apt to show an acid edge. But to his friends no man was more lovable, and his friends were many. Incidentally they included the birds of Devonshire, on which he was an acknowledged authority. He was president of the Devon Bird-watching and Preservation Society and of the South-Western Naturalists Union.

H. A. GILKES, *M.C.*, M.D.

The death of Lieut.-Col. Humphrey Arthur Gilkes, R.A.M.C., in an air crash was a great loss to the medical officers who served under him in his capacity as Principal Medical Officer of the British Somaliland Military Administration. In the war of 1914–18 he fought as a serving officer on the Western Front, and was awarded the Military Cross and three bars. After the war he studied medicine at Oxford and St. Bartholomew's

Hospital and qualified in 1922. Subsequently he took his M.A., M.D., D.P.H., and D.T.M.&H. He spent most of his medical career in the Colonial Medical Service. He was for a number of years in Northern Rhodesia, and then went to Trinidad as D.D.M.S. In the recent war, after serving with a field ambulance during the advance into the Somalilands and Ethiopia, he was sent to Somalia (the former Italian Somaliland) as A.D.M.S. There he laid the foundations of the civil medical services during a peculiarly difficult time.

Col. Gilkes (writes T. S. E.) was an outstanding personality and a steadfast believer in the potentialities of the Somali peoples. He was single-mindedly determined throughout the nearly five years he served in Somali countries that the Somalis should have a square deal, and particularly that they should have a good medical service. He was always ready to see even the humblest sweeper in the medical department, and to give him a courteous interview. In administration he had the courage to make it his guiding principle that justice to an employee must never be subordinated to administrative convenience. Col. Gilkes had many other sides to his character than the purely medical one. He was a violinist of distinction and was proud of his "Gilkes violin," which was made by one of his ancestors. He had also had two novels published, and was in the middle of a third at the time of his death.

Rather over two years ago Col. Gilkes came to British Somaliland, first as A.D.M.S. and then as Principal Medical Officer. Here he performed the difficult task of piecing together the medical services after the Italian occupation, and expanding them. He also made a singularly complete plan for the future medical development of the country. It was his personal relation with the Somalis which impressed us, who were new to Colonial conditions, so much. He seemed an example of the highest traditions of the Colonial Service, and it was surprising how many nomadic Somalis whom one talked to in the bush would know the "General daktari," as he was called. It will be a great loss to the country that he has gone while he was still at the beginning of his work here.

Dr. John Matheson died at Plockton, Ross-shire, on Aug. 30 at the age of 81. He was born at Plockton on Oct. 1, 1863, and attended school there. The present schoolmaster, addressing the pupils after his death, said, "In the passing of Dr. Matheson Plockton School has lost a life-long friend. He was one of Plockton's most distinguished pupils, and it was in keeping with his kindly nature that he should choose for his life work the alleviation of suffering." In 1884 he entered Aberdeen University with the intention of becoming a teacher, and graduated M.A., having won prizes in Greek, Latin, English, and moral philosophy. A year, however, spent in teaching decided him that that was not his *métier*, and he returned to the university to study medicine. He had a brilliant career in medicine, obtaining prizes in botany, junior and senior anatomy, practice of medicine, and medals in chemistry, physiology, operative surgery, surgery, and medical jurisprudence. He qualified M.B., C.M., with highest honours, in 1893. After serving as house-surgeon and house-physician in Aberdeen Infirmary and doing sundry locums, he went in 1894 to Greenwich as assistant to the late Dr. McGavin, later to become partner, and on McGavin's death his successor. For 40 years he carried on practice in Greenwich and Blackheath until he retired in 1934. He joined the B.M.A. in 1910 and was chairman of the Greenwich and Deptford Division, 1931–3. A keen Celt, he was an active member of the Caledonian Medical Society, and president in 1932–3 when the Society met in Windermere; "The Celtic Empire and its Decline" was the subject of his address on that occasion. On giving up practice he retired to his estate, Rudha Mor, Plockton, in the land of his birth. Here, looking over Loch Carron to the mountains of the north and to the Cuillins of Skye and the misty isles in the west, he spent the remainder of his days; happy in looking after his farm, entertaining his friends, and taking a lively interest in local affairs as a member of the district council and active member of the kirk. He was frequently called on, and always willing, to relieve practitioners in the district, and, being well known to the people, was welcomed by the patients. He was a man of decided opinions and dearly loved an argument. Widely read and possessed of a retentive memory, his conversation was always interesting and instructive. Dr. Matheson was predeceased by his wife in 1940, and suffered another grievous loss when his younger son, an officer of the Seaforths, was killed in Madagascar. He is survived by a son, Ian H. Matheson, F.R.C.S., a surgeon with the L.C.C., and three daughters. The funeral was attended by many of the neighbouring lairds and a large number of the people. After the service, partly in Gaelic, which was conducted in the open in front of the house, the coffin was carried through the village, each of the mourners alternately acting as bearers. A most impressive service.—G. W. M.

PROMOTION OF DENTAL TEACHING AND RESEARCH

To promote dental teaching and research the Nuffield Foundation has decided to make grants totalling £9,000 a year for 10 years to the Sutherland Dental School, the University of Durham; the University of Leeds Dental School; the Turner Dental School of the University of Manchester; and Guy's Hospital Dental School. In addition the Foundation is instituting Nuffield Dental Fellowships to an annual value of between £400 and £800, "to improve the supply of dental research workers and teachers." The fellowships will be awarded for one or more years, as a rule not longer than three years. Finally, the Foundation will make scholarships available to provide tuition fees and a subsistence allowance of not more than £200 a year. The scholarship will normally be tenable for only one year, but may be renewed for a second. Forms of application may be obtained from the Secretary of the Nuffield Foundation, 12–13, Mecklenburgh Square, London, W.C.1.

Universities and Colleges

UNIVERSITY OF LONDON

Mr. J. Z. Young, M.A., F.R.S., has been appointed to the University Chair of Anatomy tenable at University College as from Oct. 1. He is a Fellow of Magdalen College, Oxford, and university demonstrator in zoology, and since 1940 has been a member of the Nerve Injuries Committee of the Medical Research Council.

Prof. F. G. Young, D.Sc., Ph.D., has been appointed to the University Chair of Biochemistry tenable at University College as from Oct. 1. Since 1942 he has held the Chair of Biochemistry at St. Thomas's Hospital Medical School.

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

M.D.—E. K. Blackburn, J. W. L. Crosfill (with distinction), J. R. Edge, M. Gordon, C. E. Stuart.

Final M.B., Ch.B.—*Part II*: *J. M. Benjamin, *R. Goldberg, *Henriette Lackner, Katharine M. D. Bailey, J. G. Benstead, C. R. Berkin, N. H. Birch, Annette M. Brooks, A. S. Carey, D. E. Fletcher, R. L. Gibson, J. R. Groves, D. G. Hardy, Nancy Heron, Lilian Hodgson, C. T. Hough, Patricia Hudson, S. Z. Hulman, J. M. Inglis, B. G. Isaacs, F. D. Lumb, Mary M. Matheson, J. Price, A. I. S. Share, Mary R. Sykes.

* With second-class honours.

UNIVERSITY OF LIVERPOOL

Mr. Charles Alexander Wells, M.B., F.R.C.S., has been appointed to the Chair of Surgery and Mr. Thomas Norman Arthur Jeffcoate, M.D., F.R.C.O.G., F.R.C.S.Ed., to the Chair of Obstetrics and Gynaecology in the University of Liverpool. Prof. Wells was lecturer in practical surgery and clinical lecturer and Prof. Jeffcoate gynaecological tutor in the university.

These appointments, the *Manchester Guardian* says, mark a new departure in the history of the Liverpool University Medical School. Hitherto the professors of clinical subjects in that school have been consultants whose time has been divided between the claims of professional practice, both public and private, and the duties of the chair. The responsibilities, however, falling upon the clinical professors in the Medical School have grown considerably in recent years, and it has been thought desirable in the interests of both medical teaching and research to modify the conditions of appointment in the case of the two chairs now filled, and to require their occupants to give whole-time service to the duties of the chairs. Arrangements have been made with the Liverpool Maternity Hospital and the Women's Hospital for the professor of obstetrics and gynaecology to have beds at his disposal in those hospitals, and it is expected that the professor of surgery will have beds in the Royal Liverpool United Hospital.

UNIVERSITY OF SHEFFIELD

The following candidates have been approved at the examinations indicated:

Final M.B., Ch.B.—*Parts II and III*: J. Edwards, with second-class honours, Aileen K. Adams, H. Debovitch, C. Gething, A. P. Hayhurst, R. Horn, J. F. Hudson, G. M. King, J. Mackinnon, J. B. Maxfield, Cora H. M. Middleton, Monica H. Roper, Margaret M. P. Ryan, Joan Simon.

SOCIETY OF APOTHECARIES OF LONDON

Diploma in Industrial Health

In view of the importance attached to the study of the health of the worker in relation to both occupation and working environment in their widest sense, and the development of this study as a special branch of medicine, the Society has decided to institute a Diploma in Industrial Health. The examination for this diploma will be open to all registered medical practitioners who have (*a*) been engaged in the practice of industrial medicine in a whole-time capacity for a period of not less than two years, or (*b*) been engaged in the practice

of industrial medicine in a part-time capacity for a period of not less than four years.

The Society understands that courses in the subject are to be held in the future, and, subject to their fulfilling the requirements laid down in the Society's regulations, these will be recognized as qualifying for admission to the examination. Candidates who produce evidence of having completed the course, and who have the requisite experience in the practice of industrial medicine, will be eligible. The syllabus and regulations covering the examination will shortly be obtainable from the Registrar, Society of Apothecaries, Black Friars Lane, Queen Victoria Street, E.C.4.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Dr. W. Russell Brain, F.R.C.P., will deliver the Bradshaw Lecture at the College (Pall Mall East, S.W.) on Thursday, Nov. 8, at 5 p.m. His subject is "Speech and Handedness."

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* notifications of scarlet fever rose during the week by 230, those of diphtheria by 72, and of acute pneumonia by 58.

The greatest increases over last week's figures in scarlet fever notifications were 47 in Lancashire, and 39 in Yorks West Riding. The largest local outbreak of diphtheria was that of Worcestershire, Martley R.D. 12, and the other large local rises were 18 in Northumberland (due to a general rise throughout the county), and 53 in Yorks West Riding (mainly contributed by the county boroughs). Although the total notifications of whooping-cough fell by only 18, there were several fairly large variations in the trends for the counties, the largest being decreases of 47 in Lancashire and 36 in Essex, and a rise of 25 in Staffordshire. Lancashire reported 34 more cases of pneumonia than last week.

The largest returns for dysentery were London 57 (St. Pancras 14), Surrey 47 (Banstead U.D. 13, Coulsdon and Purley U.D. 10), Lancashire 40 (Liverpool C.B. 18, Manchester C.B. 11), Warwickshire 38 (Birmingham C.B. 16, Warwick R.D. 17), Glamorganshire 21 (Cardiff C.B. 18), Essex 14.

In *Scotland* scarlet fever notifications were 33 higher than last week, and those for acute pneumonia were 32 higher; notifications of dysentery and diphtheria rose by 9 and 6 respectively. The largest local increase in diphtheria was one of 10 in the city of Dundee. The chief centres of dysentery were Glasgow 50, and Edinburgh 22.

In *Eire* notifications of diphtheria were 35 higher, and of diarrhoea and enteritis 50 higher, than last week. Cases of the latter disease rose from 80 to 114 in Dublin C.B.

In *Northern Ireland* scarlet fever notifications rose by 7, while those for diphtheria fell by 8.

Quarterly Returns for Eire

During the June quarter the birth rate was 24.0 per 1,000, and was 0.4 above that for the corresponding quarter of the previous year. Infant mortality was only 59 per 1,000 births, being 11 and 18 below the rates for the two preceding second quarters. Deaths under the age of 2 attributed to diarrhoea and enteritis were 204, including 97 in the city of Dublin. The general death rate was 14.4 per 1,000, being 0.7 below the June quarter of 1944. The death rate per 1,000 from pulmonary tuberculosis was 1.1, and for other forms 0.4; the rates for the corresponding quarter of last year were 1.2 and 0.4. Diphtheria was the cause of 55 deaths, and whooping-cough of 48.

Week Ending September 22

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,361, whooping-cough 1,903, diphtheria 496, measles 397, acute pneumonia 347, cerebrospinal fever 39, acute poliomyelitis 45, dysentery 270, paratyphoid 8, typhoid 11.

Quarantine for Scarlet Fever in New York

The Board of Health of the City of New York decided in December, 1944, to include scarlet fever in the larger classification of "streptococcal sore throat, including scarlet fever," and recommended isolation of such cases to the duration of the acute stage, the *minimum* period being seven days. The application of restrictive measures to scarlet fever and not to other streptococcal throat infections has always been a weakness of public health regulations which called for revision. Considerable argument can be advanced, too, for a short isolation period. Scarlet fever patients are usually clinically recovered within 10 to 14 days. Does isolation beyond that point decrease the risk of infectivity? Most fever hospital clinicians would agree that it does not. Indeed, under open scarlet fever ward conditions the reverse is probably true.

No. 37

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 15.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945 (a)	(b)	(c)	(d)	(e)	1944 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	39	6	20	3	1	37	2	15	4	1
Deaths		—	1				—	—		
Diphtheria	495	28	141	86	15	541	13	183	100	15
Deaths	7	—	2	—	—	12	—	3	3	—
Dysentery	292	57	102	6	1	351	24	104	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	3	1	1	1	—	—	—	—	—	—
Deaths		—					—			
Erysipelas			58	11	—			53	10	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				147					185	
Deaths	77	4	16	19	5	91	7	39	31	9
Measles*	551	46	66	17	6	1,155	29	128	18	24
Deaths	—	—	—	—	—	—	—	—	—	—
Ophthalmia neonatorum	80	5	8	—	—	71	3	21	—	1
Deaths										
Paratyphoid fever	15	1	3(B)	2(B)	—	8	—	—	1(A)	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal†	326	14	6	1	1	291	7	2	1	—
Deaths (from influenza)	11	2	1	—	—	11	—	—	—	—
Pneumonia, primary			158	5				168	12	
Deaths		17		3	7		14		8	5
Polio-encephalitis, acute	2	—				2	1			
Deaths		—					—			
Poliomyelitis, acute	31	2	1	9	1	14	—	4	2	—
Deaths		—					—			
Puerperal fever		2	16		—		1	16		—
Deaths										
Puerperal pyrexia‡	140	4	13	1	2	130	3	9	5	2
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,381	92	293	22	33	1,591	28	253	31	59
Deaths	1	—	—	—	—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	17	—	1	12	1	5	—	6	14	3
Deaths	1	—	—	—	—	—	—	1	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,159	76	57	21	7	1,083	55	91	61	7
Deaths	5	1	1	1	—	10	4	2	—	—
Deaths (0–1 year)	337	35	43	42	12	355	30	94	46	28
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,021	595	540	157	119	3,931	435	650	181	131
Annual death rate (per 1,000 persons living)			12·3	10·1	§			14·9	11·7	§
Live births	6,494	903	779	456	230	6,271	413	822	373	304
Annual rate per 1,000 persons living			15·6	29·4	§			16·7	24·2	§
Stillbirths	203	21	28			191	15	40		
Rate per 1,000 total births (including stillborn)			35					46		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to movements of population, birth and death rates for Northern Ireland are still not available.

Medical News

The annual general meeting of the Research Defence Society will be held at 26, Portland Place, W., on Friday, Oct, 12, at 3.15 p.m., when the fourteenth Stephen Paget Memorial Lecture will be delivered by Sir William Savage. His subject is: "Public Health and its Debt to Experimental Medical Research."

The inaugural address of the 209th session of the Royal Medical Society of Edinburgh will be given by Dr. Charles Hill, Secretary of the British Medical Association, at 7, Melbourne Place, Edinburgh, on Friday, Oct. 12, at 8 p.m. His subject is "The Future of Medical Practice."

The inaugural lecture of the Faculty of Medicine of the University of Leeds will be given by Dr. Raymond Priestley, *M.C.*, M.A., D.Sc., Principal and Vice-Chancellor of the University of Birmingham, in the Riley-Smith Hall of the University Union on Monday, Oct. 15, at 3 p.m. His subject is "Scott's Northern Party: A Study of Survival in the Antarctic." Members of the medical profession are cordially invited to be present.

A meeting of the Society for the Study of Inebriety will be held at the Medical Society of London (11, Chandos Street, W.) on Tuesday, Oct. 16, at 4 p.m., when Sir Adolphe Abrahams will read a paper entitled "A Layman Looks at Alcohol." A discussion will follow.

A members' meeting of the Eugenics Society will be held at the Rooms of the Royal Society (Burlington House, Piccadilly, W.) on Tuesday, Oct. 16, at 5.30 p.m., when Dr. W. Mayer-Gross will speak on "Mental Health Problems in a Rural Area." All interested are invited to attend.

A series of lectures will be given at the Royal Institute of Public Health and Hygiene (28, Portland Place, W.) on Wednesdays at 3.30 p.m., as follows: Oct. 17, Mr. F. D. Saner, "Cancer of the Breast—Its Diagnosis and Treatment"; Oct. 24, Dr. Doyne Bell, "Some Aspects of the Public Responsibility for Child Health"; Oct. 31, Major Joseph Minton, R.A.M.C., "Eye Diseases in the East"; Nov. 7, Mr. R. P. Osborne, "Modern Methods in the Treatment of Burns"; Nov. 14, Mr. Anthony Green, "Uses of Radiology in Medicine"; Nov. 21, Mr. J. C. Ainsworth-Davis, "Urology: Some Common Symptoms and their Significance"; Nov. 28, Dr. W. W. Payne, "Diabetes in Childhood."

The annual general meeting of the Scottish Group of the Association of Industrial Medical Officers will be held at the Institute of Hygiene, University of Glasgow, on Wednesday, Oct. 17, at 3.15 p.m.

Mr. Aneurin Bevan, Minister of Health, has appointed Lord Rushcliffe to be chairman of the Advisory Committee on the Welfare of the Blind in succession to Lord Blanesburgh, who has resigned on account of ill-health.

The Minister of Supply has made an Order revoking the Control of Pyrethrum (Nos. 1 and 2) Orders, which prohibited the acquisition, disposal, treatment, use, and consumption of pyrethrum and pyrethrum products except under licence. The Ministry of Supply holds stocks of pyrethrum flowers which were acquired for war purposes and are now available to meet civilian requirements.

The Minister of Health, after investigation by officials on the spot, has found no grounds for the allegation that there has been gross maladministration at Moor Park Hospital, North Shields, Northumberland, or negligence by the medical and nursing staffs. These findings follow an inquiry into complaints contained in a diary of a former patient. The report of the Minister says, however, that, disregarding the complaints of an individual patient, it appeared that the general condition of the premises used for tuberculosis treatment left much to be desired. He was aware that the Tynemouth Council contemplated replacement but was prevented by the war from proceeding with a new sanatorium. The Council at its meeting on Sept. 26 agreed to take steps to obtain a prefabricated building to accommodate 40 to 50 patients, and to proceed with the scheme for permanent buildings.

An exhibition of the peacetime uses of "perspex" will be held at the regional office of Imperial Chemical Industries Ltd., at the Chamber of Commerce, 95, New Street, Birmingham, from Oct. 8 to 13, from 10 a.m. to 6 p.m. daily. The various sections include one showing medical applications of "perspex."

Mr. F. Le Gros Clark, M.A., secretary of the Children's Nutrition Council, will speak on "World Famine this Winter? Analysis of the World's Food Situation" at a meeting arranged by the Socialist Medical Association, to be held on Friday, Oct. 12, at 7.30 p.m., at Friends House, Euston Road, London, N.W.

The following members of the medical profession have been released from internment in Japanese hands: Dr. Ralph Stockman Begbie, Dr. George Ian Hector Braine, Dr. Edward Wilfrid Kirk, Dr. Robert Michael Ballantyne Lowis, Dr. John Norrie McArthur, Dr. Margaret Henderson Thomson, M.B.E., and Dr. Cicely Delphine Williams.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, London, W.C.1. Telephone: EUSTON 2111. Telegrams: *Aitiology Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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MEMBERS' SUBSCRIPTIONS should be sent to the SECRETARY of the Association. Telephone: EUSTON 2111. Telegrams: *Medisecra Westcent, London.*

B.M.A. Scottish Office: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Pamaquin in Benign Tertian Malaria

Q.—*It is stated frequently that in the treatment of malaria pamaquin reduces the number of relapses. Since the only specific advantage of pamaquin is that it destroys the sexual forms of the malignant tertian parasite (which presumably play no part in relapses), how is this action accounted for?*

A.—It is true that pamaquin has a selective action on the sexual forms of the malignant tertian parasite, but it has in addition some action on other forms. There is evidence that in the treatment of relapses in patients suffering from benign tertian malaria a combination of quinine and pamaquin has much more effect than quinine alone. The treatment consists of giving 10 grains of quinine and 0.01 g. of pamaquin three times a day; these doses are given for 10 days. This treatment appears to be much more effective than treatment with mepacrine, but it should be emphasized that it applies to patients having relapses from benign tertian.

Lumbar Puncture in Infants

Q.—*What are the special anatomical relations in the spinal column of a young infant which must be borne in mind when doing a lumbar puncture on the very young? Does the procedure differ from that in the adult?*

A.—The position of choice for puncturing the spinal membranes is the same at any age: that is to say, between the fourth and fifth lumbar vertebrae. The anatomical differences from the adult in a small baby are two: first, that the spinal canal is proportionately closer to the surface than in the adult, owing to the comparative shortness of the spinous processes; secondly, that the bones are much softer—in fact, almost entirely cartilaginous for the first few months. The consequence is that it is possible to miss tapping the fluid owing to pushing the needle right through the minute spinal canal. In a strong and resistant infant it is usually worth while to give a light anaesthetic in order to stop the sudden movements which will otherwise inevitably hamper a delicate process. As in adults, the spinal needle should never be thrust through the skin owing to the danger of punching out a piece and infecting the meninges with it. The skin should always be incised with a small sharp knife.

Varicose Ulcers

Q.—*A woman aged 71 has suffered from varicose veins for 35 years, accentuated after the birth of a son (primipara) at the age of 39. She wore elastic stockings and occasionally bandages up till 1929, when venous injections enabled her to do without artificial supports. Eight years ago there was a return of varicosity, and she has had to resume elastic stockings. Three months ago a small ulcer, which does not respond to local treatment, appeared on the right internal malleolus.*

A.—The patient seems to have had great benefit from injections 8 years ago, so that concentrating on the local treatment of the ulcer without attacking the fundamental cause seems to be the present mistake. The combination of ligature of the main trunks and injections will close the veins, and the ulcer will heal with no local applications at all.

Liver Extracts

Q.—*Which liver extract would most likely benefit cases of aplastic anaemia or essential thrombocytopenia? I am told the crudest is the best. What doses and for how long continued would constitute "intensive liver treatment"?*

A.—There is no evidence that any liver extract benefits aplastic anaemia or essential thrombocytopenia. Both diseases are characterized by a tendency to spontaneous remissions, and any apparent improvement under treatment with liver extract can be attributed to this phenomenon. Nevertheless, it is a good rule that no patient

with a blood disease should be denied the opportunity of responding to liver therapy, though the ordinary dosage for pernicious anaemia should be sufficient for this purpose—i.e., 4 c.cm. of any reliable intramuscular extract twice weekly for a month.

Liver extracts can be classified as "crude" or "dilute" on the one hand, and "refined" or "concentrated" on the other. Experience shows that the refined extracts are more reliable than the crude, presumably because greater care is taken in clinical testing and assay. Intensive liver treatment, such as would be administered in a refractory case of pernicious anaemia, would formerly have implied 4 c.cm. of refined extract of liver intramuscularly every day for six weeks. To-day the injections would be supplemented or even replaced by proteolysed extract of liver, 1/2 oz. three or four times a day by mouth, and the proved superiority of oral therapy of this kind to any form of parenteral therapy has quashed the arguments that have been advanced on behalf of crude intramuscular extracts.

Dermatitis of Palms

Q.—Please advise on treatment of dermatitis of both palms. There is intensive itching, then a cracking and desquamation of the skin. Duration off and on for nearly 20 years at intervals, now constant for the last 12 months and extending to the palmar surface of fingers and thumbs. Very unsightly; various ointments tried; patient's age 74.

A.—In the absence of a more detailed description the following general rule is offered as an aid to diagnosis and treatment. Chronic skin diseases of the palms may be approximately divided into three groups.

1. Local or general infection—i.e., ringworm or syphilis. The first is confirmed by microscopical detection of the fungus in the scales, or in exceptional cases by culture; the second, by a positive Wassermann reaction. Appropriate treatment includes (*a*) Whitfield's ointment, and (*b*) antisyphilitic remedies.

2. The second group represents certain generalized skin diseases in which the palms may be affected, such as eczema and psoriasis; the presence of the eruption elsewhere provides the key to diagnosis. The treatment is that appropriate for the general condition.

3. In the third group the non-committal diagnosis of idiopathic hyperkeratosis or dermatitis is allowable.

In the second and third groups *x* rays given in small doses by an expert familiar with the very special technique are often curative. Crude coal tar 6% in zinc paste, a rather dirty but valuable remedy, can also be tried. As the palmar skin is constantly in motion and also constantly subjected to various degrees of trauma, rest and protection may be required—by an occlusive dressing of linen or gauze spread with 3% ichthyol ointment held in place with elastoplast and kept in position unchanged for a week, unless there is evidence of intolerance. Rare or comparatively uncommon processes such as arsenical hyperkeratosis or acrodermatitis are not covered by the above. The allergic dysidrotic eruption of fingers and palms secondary to ringworm between the toes does not seem to fit into the clinical picture as described in the question.

Penicillin and Virus Infections

Q.—Has penicillin ever been used in the treatment of chronic encephalitis, or the sequelae of encephalitis, such as Parkinsonism, and if so with what result?

A.—Parkinsonism and other sequelae of encephalitis are degenerative conditions on which neither penicillin nor any other anti-infective agent could conceivably have any effect. Even in the acute stage virus infections of the central nervous system are, so far as is known, unaffected by penicillin; there is very little evidence that penicillin has any action on filterable viruses.

Nervous Reaction after Bombing

Q.—A patient was in his house when it was bombed two years ago. He now complains of being very tender to touch; his arms and neck are red at times and burn. He cannot hold anything, and feels at times as if his skin was coming off. He gets very itchy when he touches any part of his body. He is healthy in other respects. Can you advise on treatment?

A.—In such cases we almost invariably find that there is a period of amnesia; it may be the actual explosion, it may be the thought that this was the end. Part of the experience is therefore dissociated, and it is this dissociated part which perpetuates the nervous condition. The symptoms of tenderness and burning are almost certainly experiences which he felt at the time, and which, because they are dissociated, tend to recur. In other terms, there is an unsolved problem in his personality which will not allow him to rest till he solves it—a problem of fear. The best form of treatment in such cases is "abreaction"—namely, to recover the forgotten part of the experience with all its terror and pain, and when it is brought to the light of consciousness the patient is relieved in himself and cured of his symptoms. This requires the skilled treatment of a psychotherapist, either by hypnosis or by free association. But if such is not available, "narco-analysis" may be tried, and an attempt made to recover the experience under light narcosis of evipan or pentothal. The patient should be put only just over, and then urged to remember the whole experience and live it through again. Several treatments are usually required by whatever method.

Extrasystoles

Q.—Why should a meal produce premature beats? What are the significance and cause of extrasystoles in a man of 68 with arteriosclerosis and blood pressure 220, and in a young female patient who is disturbed after meals and at night (preventing sleep) by a sensation as if the heart gave a kick or turned over, and by occasional long pauses? What is the treatment of the elderly and the young?

A.—Premature beats may result after a meal because of the increase in work due to the increase in cardiac output, or perhaps reflexly from the stomach, possibly through gastric distension.

The cause of extrasystoles in a man of 68 is probably ischaemic changes in the myocardium consequent upon sclerosis of the coronary arteries. In themselves they have but little significance, although a patient with them is, perhaps, in slightly worse case than a similar patient without. In a young patient the cause cannot be ascertained without further investigation. A source of toxin should be sought for, the intake of tea and coffee considered, the consumption of tobacco remembered, and the diet perhaps regulated. The treatment of the extrasystoles themselves consists in possibly removing the cause, if it can be found, and in using sedatives to reduce the irritability of the myocardium. Bromide, barbitone, quinidine (not now obtainable), are most likely to be successful. Removal of anxiety caused by extrasystoles is most important. Many patients have them unaware; treatment is only needed if they cause annoyance.

Instruction about Menstruation

Q.—What are the current views, both gynaecological and psychological, regarding the wisest approach to the subject of menstruation on the part of those responsible for girls' boarding schools? I refer in particular to the questions of (a) games-playing, and (b) instructional guidance.

A.—Instruction should have two main objects—to give the girls a simple but truthful account of the physiology of menstruation and its significance, and to impress them with the fact that it is not an illness but a natural process which is not incapacitating in any way. The achievement of such aims will of necessity also require the discrediting of the many false ideas and superstitions which are still widely current.

There are many ways of approach, and those responsible for giving instruction will naturally choose one which they can best handle, and they may with advantage vary it to suit the individual child. Information on reproduction is often the best starting-point—information which the child may already have received before entering school. The next step is to point out that the young of all species are incapable of reproduction, which capacity only comes when they are fully developed in other respects. The onset of menstruation then becomes a sign that genital development is taking place, a sign of approaching womanhood. Having received a reasonable explanation, most girls will accept menstruation as a feminine characteristic and cease to take much further interest in it, but, lest they should discuss it among themselves and compare notes, it is perhaps wise to point out that, as in other features, individuals vary widely in their menstrual function—the age of menarche, the periodicity, duration and amount of flow, etc. It is important that they should also realize that the menstrual discharge consists essentially of healthy blood, and not of any noxious material or waste product the excretion of which is necessary for bodily well-being. It follows from this that the suppression of menstruation does not have any of the general ill effects which popular fallacies allege.

The management of girls during menstruation should follow the teaching that it is a normal process which should not interfere in any way with their ordinary life. They should be expected and encouraged to continue their studies, games, and other activities of all kinds (including washing of hair, taking baths, etc.), and only in exceptional circumstances should a girl be allowed any relaxation from the ordinary school routine. Games and other forms of exercise are especially valuable, because they not only distract the girl's attention and discourage any idea that she is "poorly," but also prevent any tendency to pelvic congestion. The only exception is perhaps swimming—not because cold water is harmful, but for aesthetic reasons only.

Instruction should also be given in the matter of personal cleanliness, and the girls made to bath daily and to change sanitary towels and underclothing frequently. Douching at the conclusion of menstruation as taught in some Continental schools is, however, to be deprecated as both unnecessary and potentially harmful.

There remains the ever-debatable question as to who should give information on these matters—parent, doctor, or teacher? The answer varies, no doubt, with different cases, but surely the ideal is that it should be given by the mother, informally and piecemeal, as the occasion presents, and before the girl reaches puberty or

enters boarding school. Unfortunately some mothers omit to give any information, and many more, through ignorance, give wrong advice. The omission can be remedied fairly easily, but the school staff may find it very difficult to eradicate false impressions which a girl has received from someone in whom she has implicit trust.

Large Vitamin Dosage

Q.—*Is there any proof that large quantities of vitamins are of any value? In the early days I was taught that Hopkins regarded the vitamin action as catalytic and only minute traces were necessary for life and health. Is this view no longer held? This is a humble inquiry to those who are better informed from a practitioner confessing ignorance.*

A.—I assume that the questioner means by "large," quantities above those recommended by, for example, the National Research Council, U.S.A. On the whole the reports indicate that no benefit is derived from the addition of extra vitamins to a diet that is already adequate. The following are examples.

Cowan, D. W., *et al.* (*J. Amer. med. Ass.*, 1942, **120**, 1268): no difference in incidence and severity of colds when extra vitamin A, aneurin, riboflavin, ascorbic acid, and vitamin D given.

Keys, A., and Henschel, A. F. (*J. Nutrit.*, 1942, **23**, 259): no difference in young men taking strenuous exercise when extra aneurin, nicotinamide, calcium pantothenate, riboflavin, pyridoxine, and ascorbic acid given.

Bierman, W. (*Arch. physical Therap.*, 1940, **21**, 267): colour vision not improved by large doses of vitamin A.

Johnson, R. E., *et al.* (*J. Nutrit.*, 1945, **29**, 155): no improvement in physical capacity in man receiving 300 mg. of ascorbic acid in addition to a diet supplying 56 to 109 mg. per day.

The subject is discussed by Keys, A. (*Fed. Proc.*, 1943, **2**, 164). In deficiency diseases large doses are needed in order to make up the deficit. Also it is possible that large doses may have some stimulating effect comparable to that of large doses of iron, which may raise the haemoglobin in the blood of apparently normal people.

English Qualifications in Canada and U.S.A.

Q.—*Is an M.R.C.S., L.R.C.P. allowed to act as locumtenent in general practice in Canada? What is the minimum time during which an M.R.C.S., L.R.C.P. can qualify as a medical practitioner in any one State in the U.S.A.? Is any concession made in respect of an English diploma?*

A.—There is a separate medical licensing law in each Province of Canada. Reciprocal agreements with regard to medical practice exist between this country and the Provinces of Alberta, Manitoba, Nova Scotia, and Prince Edward Island, and a holder of the diplomas of M.R.C.S.Eng. and L.R.C.P.Lond., who is registered in the *Medical Register* kept by the General Medical Council, should be able to obtain licences to practise in these four Provinces without further examination. In the remaining Provinces he would probably be required to pass an examination held either (1) by the Provincial Licensing Authority (usually entitled the College of Physicians and Surgeons), or (2) by the Medical Council of Canada and accepted by the provincial authority in lieu of its own examination.

It is understood that a majority of the United States accept the Diploma of the National Board of Medical Examiners of the United States, and that the English Conjoint Board have an agreement with the National Board of Medical Examiners whereby holders of the diplomas of M.R.C.S.Eng. and L.R.C.P.Lond. are admitted to the examinations of the National Board without any further course of study.

Albuminuria in Pregnancy

Q.—*I have noticed that in cases of advanced pregnancy with albuminuria the onset of labour was immediately preceded by an increase of the amount of albumin in the urine. Is there any connexion between albuminuria and onset of labour?*

A.—Albumin is frequently found in the urine during the course of labour, and is said to occur in one out of every three labours and to be especially common in primigravidae. Prolonged and difficult labour, a rise of temperature, and the administration of anaesthetics during labour are said to predispose to albuminuria. The amount is usually slight and should not exceed 1 part per 1,000. The cause of the albuminuria in labour has been variously attributed to the hard muscular work involved, to the rise of blood pressure which is a normal concomitant of labour, and to the escape of chorionic villi into the maternal circulation, the result of the powerful contractions of the uterus. Whatever the explanation may be, I know of no observations on albuminuria immediately prior to the onset of labour.

The causes of albuminuria in pregnancy are well known. It is, of course, important to ensure that it is a true albuminuria and to exclude contamination of the urine by vaginal discharge. In most cases some cause can be determined—e.g., toxaemia, pyelitis, chronic nephritis, etc.; in which case there will usually be some other sign, such as a rise of blood pressure.

INCOME TAX

Replacement of Car: Allowances

The present high cost of motor cars and the increased amount which have been obtainable recently for second-hand cars have raised questions on which some general guidance may be desirable. When a practitioner decides to dispose of a car and buy a new one it frequently happens that the amount he receives for the old car—by way of set-off against the cost of the new one—is considerably greater than that portion of the cost of the old car which has not been allowed against his past earnings in the form of a depreciation allowance. For instance, the old car may have cost £500, and £400 may have been allowed over a period of years as "depreciation"; if the car is now sold for £225, the practitioner is in the position of having been allowed to deduct £400 depreciation although over the life of the car the cost has been only £500−£225=£275. The question which arises is whether any adjustment should be made for what may appear to have proved an excessive allowance of £400−£275=£125, either by altering the past or future normal allowances or by treating the £125 as in some way amounting to an assessable profit. The answer is quite simple. The £125 is an untaxable advantage which has accrued through the capital appreciation of an asset used in the practice. If the owner were trading in cars the position would be different, but as the car was part of the equipment and not part of a trading stock no assessable profit arises from the advantageous sale. The depreciation allowances in past years may be assumed to have correctly represented "the diminished value by reason of wear and tear during the year," and the subsequent sale price of the car is relevant only as regards any claim to "obsolescence" allowance. In the circumstances no such claim arises, but the statute affords no authority for the conception of a *negative* allowance, and therefore no adjustment of past or future normal depreciation allowances would be justified. In such a case therefore, as the instance suggested above the practitioner has, in the result, been fortunate enough to obtain some untaxable advantage in connexion with the old car, and is entitled to claim depreciation on the full cost of the new car, and not on the cost as reduced by the quasi-profit on the old one.

Additional Share of Partnership Profits

J. W. acquires an increase in his share of the profits of the practice as from Oct. 1, 1945. How does this affect the tax payable for the year ending April 5, 1946?

*** The profits of the practice are assessable on the basis of the amount of the profits for the year preceding April 5, 1945. But that assessment is divisible between the partners according to their respective shares for the current financial year. J. W. will therefore be responsible for tax on his increased share as from Oct. 1, 1945, and the share of the tax payable by him in January and July, 1946, will be increased accordingly.

LETTERS, NOTES, ETC.

Doctors and the Social Trend

Dr. Geoffrey Duckworth (London, W.1) writes: Possibly Dr. P. G. S. Davis (Sept. 22, p. 405) read my letter hastily. Had he read it thoughtfully he would surely not have omitted the essential qualification, now in italics, "... *the Labour Party's idea of* ..." Dr. Davis imagines I assumed that all the Liberals would have opposed the (Labour) measure. I merely reminded readers that under proportional representation the Labour Party would not have had a majority. How can this be called a decisive vote in favour of the Labour Party's idea of a National Health Service?

Alphabetical Pride

Dr. Kenneth McFadyean (London, S.E.24) writes: I wonder if you can enlighten me as to the purpose, if there be one, of the newly developed and nauseating habit of our profession signing their personal letters with the appendage of all the qualifications which they possess. I recently received a letter from a colleague starting with "Dear Dr." and ending "yours sincerely," and following his signature appeared these qualifications: M.B., B.S., D.A., D.C.H., D.P.H., D.M.R., D.M.R.E.

Tuberculosis Death Rate in Wales

In our issue of Sept. 15 (p. 363) appeared a short account of a report issued by the Northern Ireland Branch Council of the B.M.A. We quoted from this report the figure for the annual death rate from tuberculosis for Wales as 958 per million. We are informed, however, by the Principal Medical Officer of the King Edward VII Welsh National Memorial Association that the most recent death rate from tuberculosis in Wales—namely, for 1944—is 715 for all forms of the disease. In 1938 it was 812, and to reach a figure approaching the 958 quoted in our article one has to go back to 1934, when the death rate in Wales was 913.